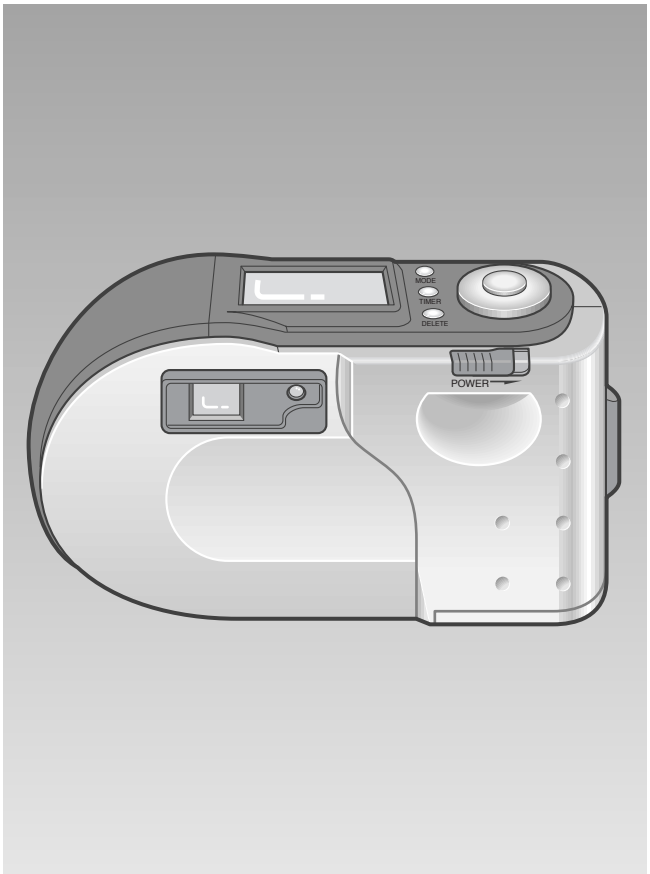
SAMSUNG

DIGITAL STILL CAMERA

SDC-30
SDC-33

SERVICE Manual

DIGITAL STILL CAMERA



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AD68-20286A / AD68-20289A

1. Precautions

1. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.

2. When reinstalling the chassis and its assemblies, be sure to restore all pretective devices, including : control knobs and compartment covers.

3. Make sure that there are no cabinet openings through which people--particularly children --might insert fingers and contact dangerous voltages. Such openings include the spacing between the picture tube and the cabinet mask, excessively wide cabinet ventilation slots, and improperly fitted back covers.

   If the measured resistance is less than 1.0 megohm or greater than 5.2 megohms, an abnormality exists that must be corrected before the unit is returned to the customer.

4. Leakage Current Hot Check (See Fig. 1) :
   Warning : Do not use an isolation transformer during this test. Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, *Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).

5. With the unit completely reassembled, plug the AC line cord directly the power outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known erath ground (metal water pipe, conduit, etc.) and all exposed metal parts, including : antennas, handle brackets, metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

6. X-ray Limits :
   The picture tube is designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the picture tube only with one that is the same type as the original.

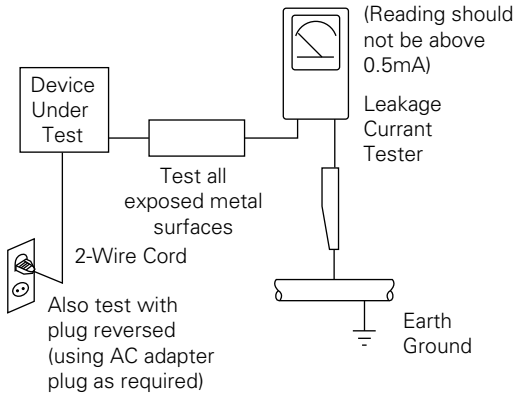

(Reading should not be above 0.5mA)
Device Under Test
Leakage Currant Tester
Test all exposed metal surfaces
2-Wire Cord
Also test with plug reversed (using AC adapter plug as required)
Earth Ground

Fig. 1 AC Leakage Test

7. Antenna Cold Check :
   With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs. Connect one lead of the ohmmeter to an AC prong.
   Connect the other lead to the coaxial connector.

8. High Voltage Limit :
   High voltage must be measured each time servicing is done on the B+, horizontal deflection or high voltage circuits.

   Heed the high voltage limits. These include the *X-ray protection Specifications Label*, and the *Product Safety and X-ray Warning Note* on the service data schematic.

9. Some semiconductor ("solid state") devices are easily damaged by static electricity.
   Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.

10. Immediately before handling sny semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging Wrist-strap device. (Be sure to remove it prior to applying power--this is an electric shock precaution.)

11. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.

12. Design Alteration Warning :
    Never alter or add to the mechanical or electrical design of this unit. Example : Do not add auxiliary audio or video connectors. Such alterations might create a safety hazard. Also, any design changes or additions will void the manufacturer's warranty.

13. Hot Chassis Warning :
    Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord. If an isolation transformer is not used, these units may be safely serviced only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC source.

    To confirm that the AC power plug is inserted correctly, do the following : Using an AC voltmeter, measure the voltage between the chassis and a known earth ground. If the reading is greater than 1.0V, remove the AC power plug, reverse its polarity and reinsert. Re-measure the voltage between the chassis and ground.

14. Some TV chassis are designed to operate with 85 volts AC between chassis and ground, *regardless of the AC plug polarity*. These units can be safely serviced *only* if an isolation transformer inserted between the receiver and the power source.

15. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.

16. Always connect a test instrument's ground lead to the instrument chassis ground *before* connecting the positive lead; always remove the instrument's ground lead last.

17. Observe the original lead dress, especially near the following areas : Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that leads and components do not touch thermally hot parts.

18. Picture Tube Implosion Warning :
    The picture tube in this receiver employs "integral implosion" protection. To ensure continued implosion protection, make sure that the replacement picture tube is the same as the original.

19. Do not remove, install or handle the picture tube without first putting on shatterproof goggles equipped with side shields. Never handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; do not try to remove such "permanently attached" yokes from the picture tube.

20. Product Safety Notice :
    Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original--even if the replacement is rated for higher voltage, wattage, etc.

    Components that are critical for safety are indicated in the circuit diagram by shading, (or).
    Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

2. Reference Information

2-1 Circuit description

2-1-1 DSC

Digital camera(SDC-30/33), is an image-input device that connects to a PC. It's small and light welght, supplies high quality images and has a large capacity (4MB/2MB). The digital camera consists of 3 sections: Camera, signal processing and storage.

1. Camera

The camera is similar to a camcorder but adapts a scanning method of 525/30 (which can read an entire image of in one frame, whereas the camcorder's scanning method is 525/60.
Photo-exposure is controlled by the electronic shutter through timing generator and CCD driver IC (where as a camcorder controls the exposure using an IRIS).
Main function of this part is to control the photo-exposure in accordance with the brightness, and to store the image in DRAM.

2. Digital Signal Processing

Image information of 1 frame is temporarily stored in DRAM. Image information stored in DRAM is the digitalized CCD signal from the camera. It needs additional image signal processing by the 32-bit microprocessor. The image signal processing done by the microprocessor includes white balance, shape adjustment and Y/C signal conversion.

3. Storage

After image signal processing, an image signal compression technique allows more image to be stored in the limited memory. In the case of SDC-30/33, 10:1 compression is normally executed for standard JPEG specification. After compression, the image information is stored in the nonvolatile flash memory : Max. 45/22 frame for VGA(640*480), and max 180/90 frame for QVGA(320*240).
The image can be stored, edited, and printed by the PC image editing program that is supplied with the camera.

2-1-2 Power

LCD MICOM generates the control signal that turns on the system (5V). When the power is on, the signal turns on IC140 PWM IC which outputs 5V through T141.
When shot key is pressed, the signal for output is generated from MICOM, which turns on IC120 PWM IC and outputs 5V, -7V, and 15V through T121. After the shot, the camera control signal turns off the power supply within. 5sec (through T121).

2-1-3 DC/DC block operation description

2-1-3(A) DC/DC BLOCK CONSISTS OF THREE COMPONENTS AS BELOW.

1. EVER5V

EVER5V consists of S8420 (IC100) IC and the assocciat battery circuitry (CN101 Pin2) is input to IC100 (S8420). Pin 8 and 5V voltage are generated internally and are output to pins 1 and 7. EVER5V power (Pin 1) is input to the function board for LCD MICOM (IC601) drive, POWER S/W (LED01) driving power, and PULL-UPvoltage. RESET output of IC100 Pin 5, which changes from low to high at the power input, is connected to LCD MICOM RESET PIN (and resets LCD MICOM).

2. Camera power

Camera power block consists of IC120 (PWM IC MB3800), Q121 (INVERTER TR DTC144EU), Q122 (SWITCHING TR KSD1621), and rectifier circuit.
When CAM5V control pin of LCD MICOM 10PIN is high, it is converted at Q121 and IC 120. Pin 4 becomes low; then IC120 Pin 7 starts oscillating and the PWM output from IC120 Pin 5 switches Q122. Pin 6 generates the 15V output by a switching pulse and this output is rectified by D121, L123, C127, and C128 to generate 15V power for the drive of CCD (IC201) and V DRIVE IC (MN3112SA).

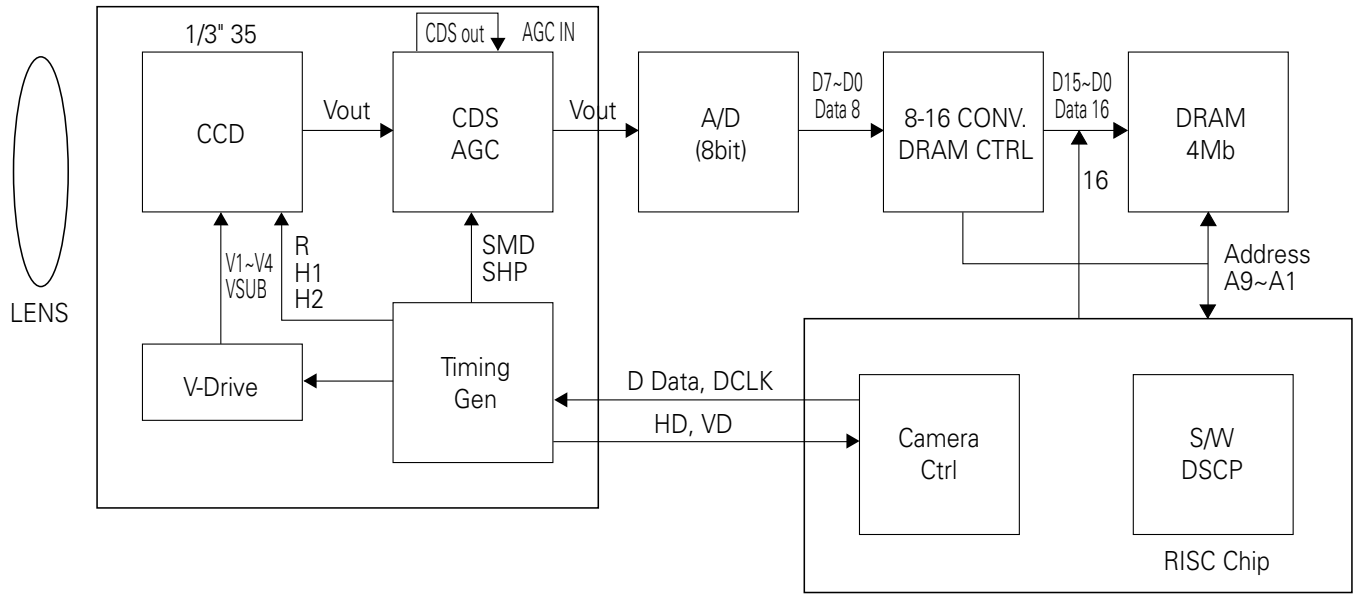
The pulse for -7V (which is generated at T121 pin 10), is rectified by D121, C129, L124, C130 and becomes -7V power for the drive of CCD and V DRIVE IC.
The pulse for 5V power, which is output from T121 pin 7, becomes CAMERA 5V power by D122, C133, L127, and C134. The 5V power is divided by D5V for the drive of IC204(MN5246) and IC202(MN3112SA) and A5V for the drive of IC203, IC205, and IC206 through L125.

3. SYS 5V

Using the same technique as with camera 5V (L141, IC140, Q142, and T141), the SYS 5V power drives IC301, IC302, IC303, IC304 and IC307, and is generated by SYS 5V CONT from the LCD micom.

EVER5V power is always output when battery and adapter are connected; SYS 5V power is output only when power is turned on. CAM power is output for 0.5 second (only during shot operation).

2-1-4 Camera



1. Camera operation

Fig. 2-1

The image from the lens is converted to an electrical signal by the photoelectric conversion component, CCD (MN3776PE). Each pulse used to extract CCD signal is generated by the timing geneartor IC(MN5246), converted to actual driving voltage by V Drive IC(MN3112SA), and supplied to CCD. After noise elimination (CDS) and amplification (AGC) at analog process IC(NN2038FAQ), CCD output signal is converted to a digital signal by A/D converter. The 8-bit digital data is changed to 16-bit by DRAM control IC(SMA9606), and stored in the DRAM.

2. Lens

SDC-30/33 lens uses a fixed focus method, and can take a photograph clearly at over 1 meter distance (optimal quality is between 1.5 and 3 meters).

3. Color Filter

R	G	R	G	–	–
G	B	G	B	–	–
R	G	R	G	–	–
G	B	G	B	–	–
–	–	–	–	–	–
–	–	–	–	–	–

Color filter, which remove, the color information on CCD, adapts RGB method for best color characteristics and Bayer method for best.

4. CCD(MN3776PE) and V Driver(MN3112SA)

CCD converts the optical image to an electrical signal and is similar to an existing camcorder (except for the scanning method). The camcorder method uses interlace scanning, which outputs a field image every 1/60 second. (First field consists of odd lines, the second field consists of even line, and a complete picture consists of two fields. However, SDC-30/33 uses a the progressive scanning method, which outputs a frame every 1/30 second (and has excellent vertical resolution).
The image is output at Pin 1 of CCD, and is input to Pin39 of analog signal process IC (IC203) through TR (Q201).
V Driver IC (MN3112SA) mixes each CCD driving pulse from Timing Generator IC, and converts it to the required voltage.

Effective Pixel
325,546=659(H)X494(V)
ØV1~ØV4: Vertical Shift Clock
ØH1~ØH2:
Horizontal Shift Clock
V01: Video output

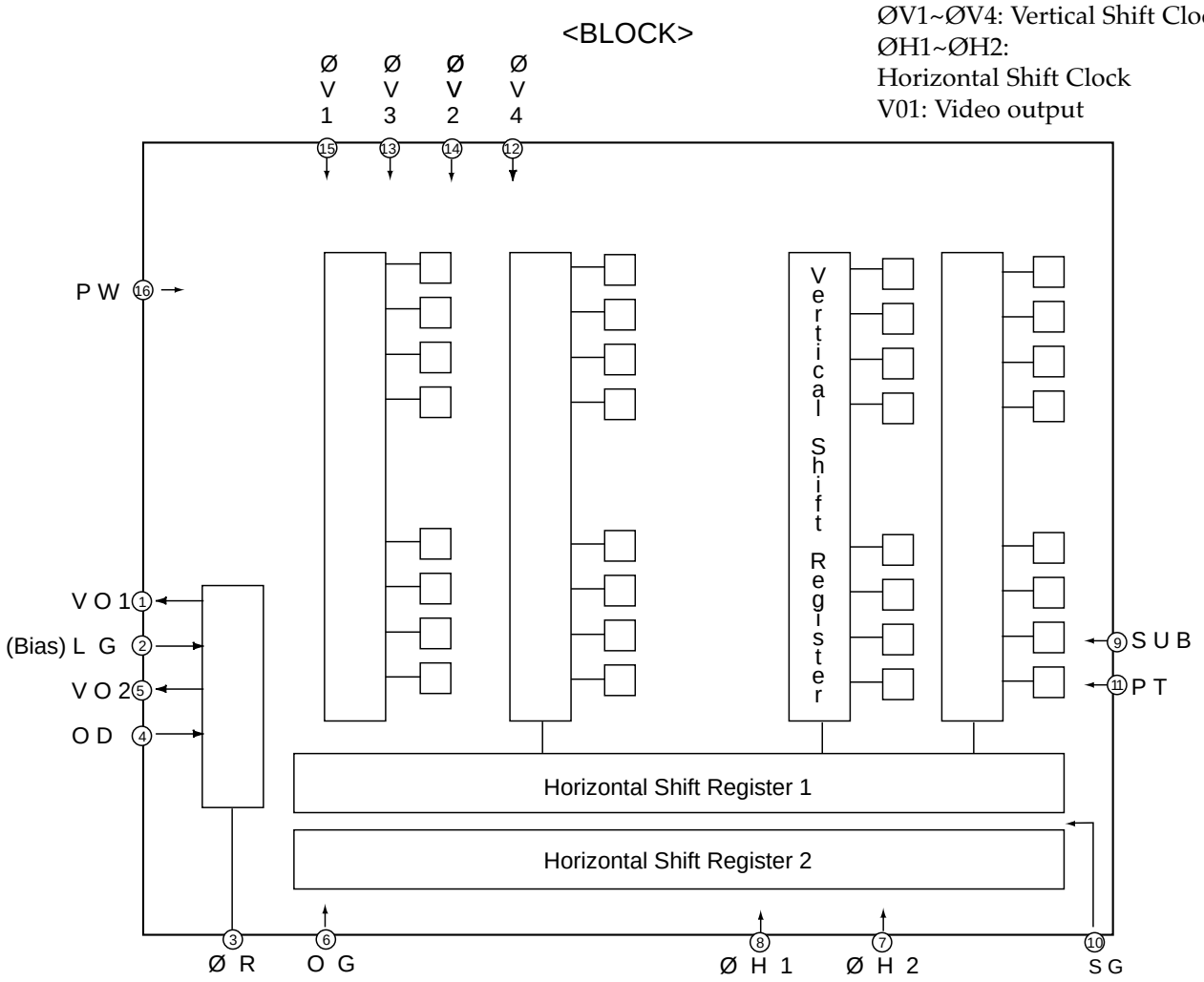


Fig. 2-2

5. Timing Generator (MN5246)

A timing generator generates each clock, synchronized signal, and CCD driving pulse for the system. Also, it receives the shutter speed information for the photo-exposure control (from the microprocessor).

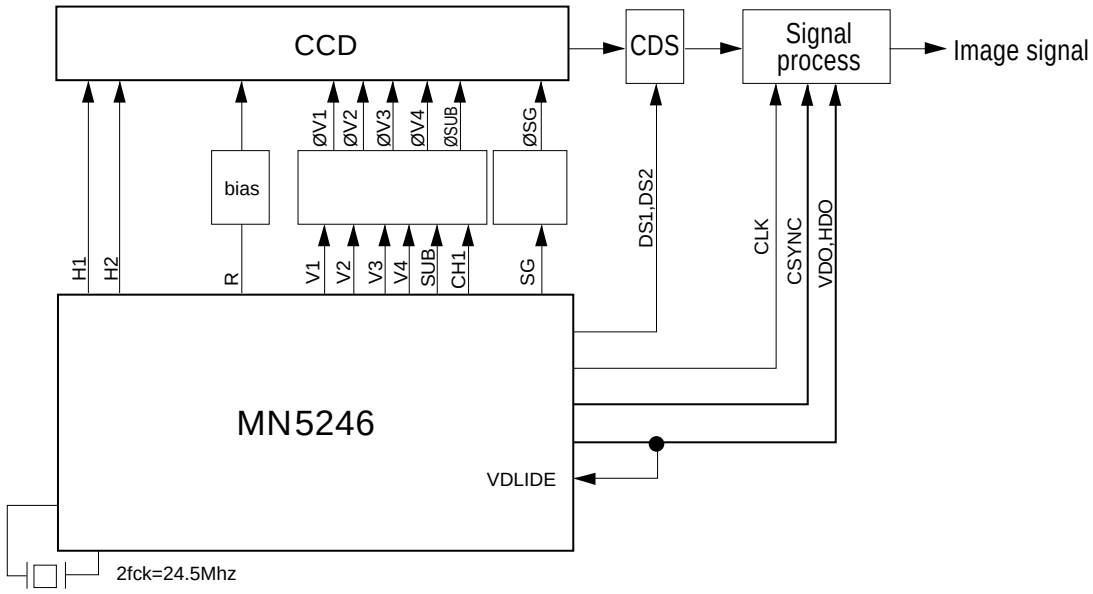


Fig. 2-3

6. Analog processing IC (MN2038FAQ)

After eliminating the noise (CDS) from the CCD output signal (which is input to Pin39, to DS1/DS2 signal of TG), Analog processing IC outputs it to Pin 46, and then it is input to pin 2 through C232 (for Row Clip and primary amplificationAGC). Then it is output to Pin 35 and Pin 37 of EVR (IC206), which is input to pin 36, which controls AGC. Pin 35 output signal is input to Pin 26 through C218, and is amplified second time at the main amplifier. The offset adjust (pin 16 input) is activated by EVR output signal (Pin 4) and the output (Pin 21) is sent to A/D converter.

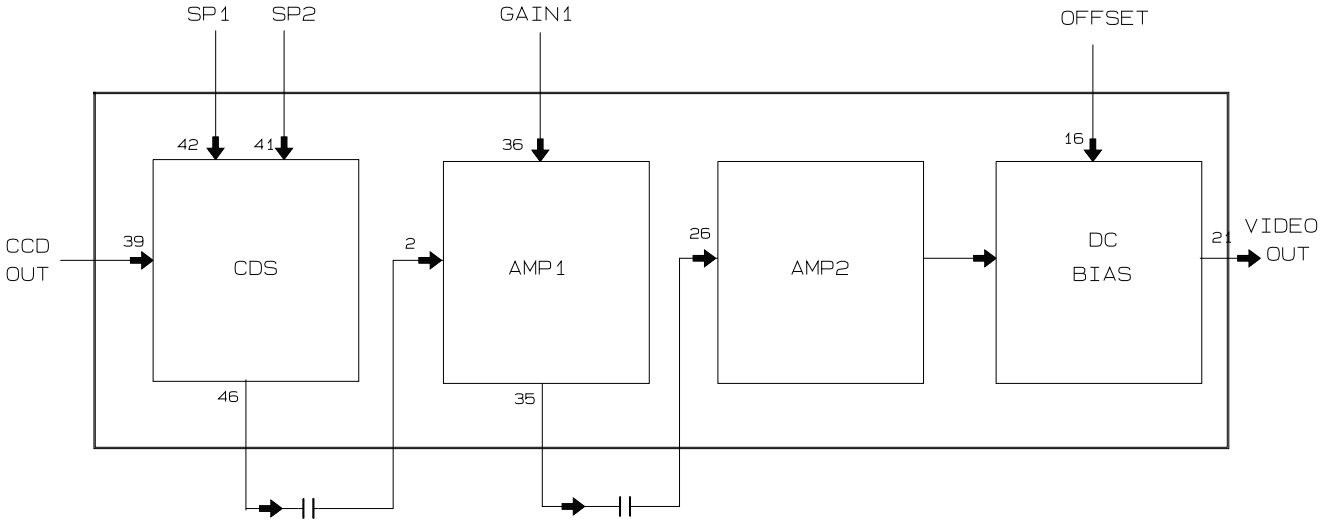


Fig. 2-4

7. A/D converter (KAD0228) and DRAM Controller (SMA9606)

A/D converter converts the analog signal which is output from Analog processing IC to the 8-bit digital signal (24.54Mhz). DRAM Controller is synchronized with Vsync, converts the 8-bit data which is output from A/D converter to 16-bit data, and stores it in DRAM (controlled by the 32-bit microprocessor).

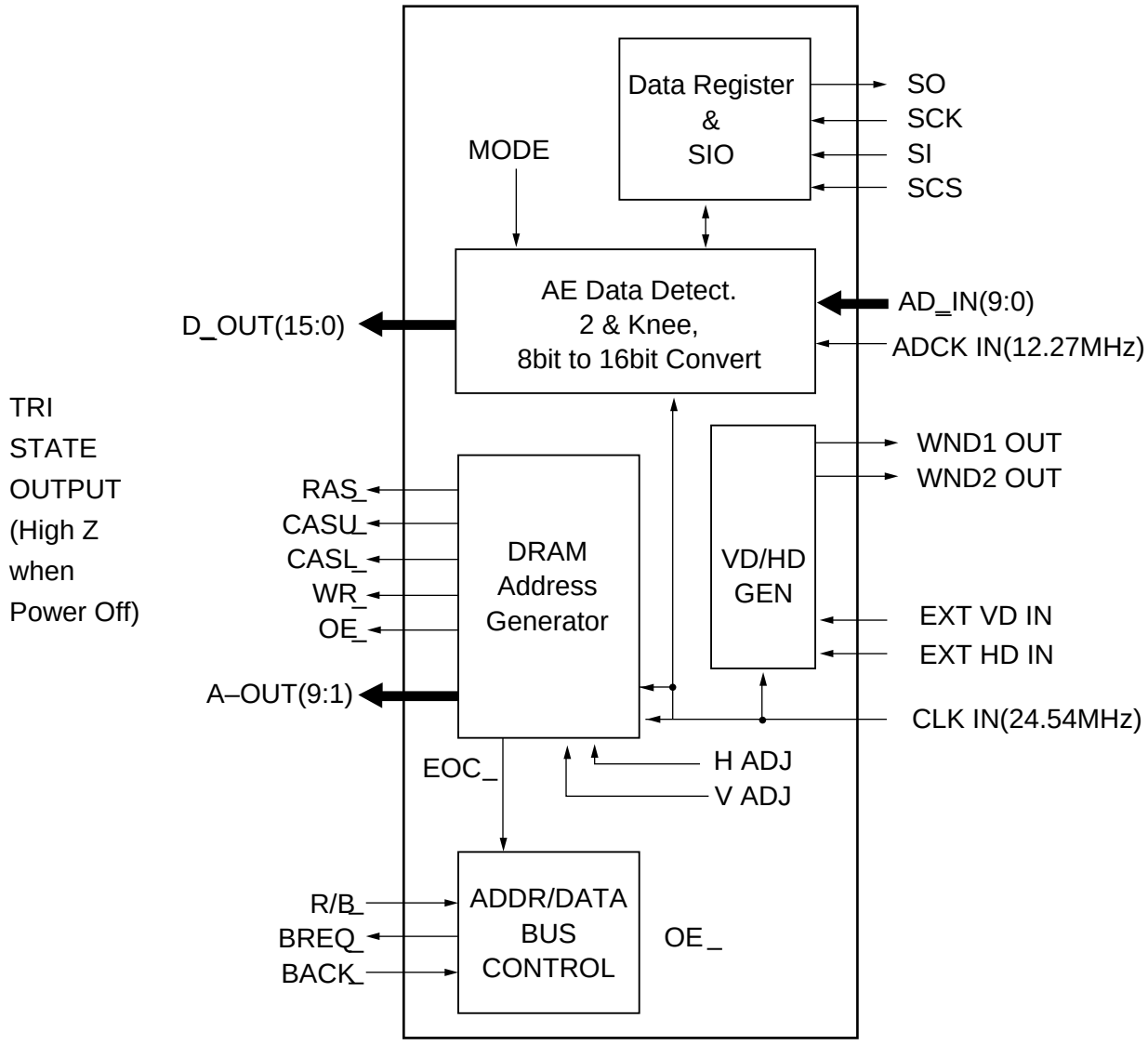


Fig. 2-5

2-1-5 Digital Section

1. Overview

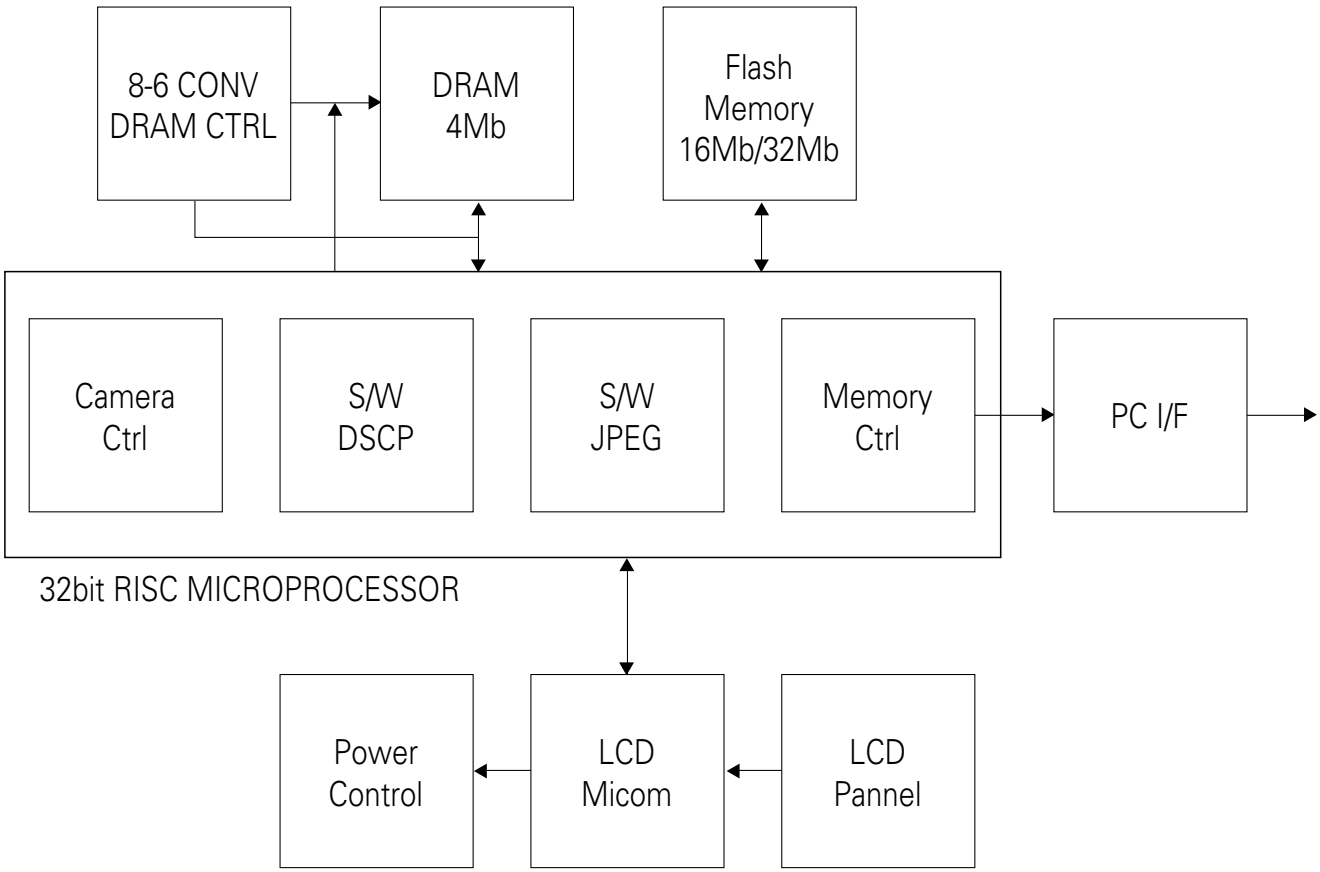


Fig. 2-6

2. DRAM (KM416C256BLT) and flash memory (TC5832FT/TC5816FT)

DRAM stores the image signal temporarily and enables the microprocessor to process the signal. Flash memory (nonvolatile) records various system information and the compressed image.

3. 32-bit RISC microprocessor (HD6477043F28)

This microprocessor is the core of the system and handles the camera control, image signal processing, image compression, flash memory control, communication with PC, and communication with LCD control MICOM. (Refer to 2-1-6 “System Control” for details.)

2-1-6 Sytem control

Dual controller (MICOM) is located in DSC : A RISC chip controls the signal processing, and is the 4-bit MICOM controls the LCD, timer, and switch.

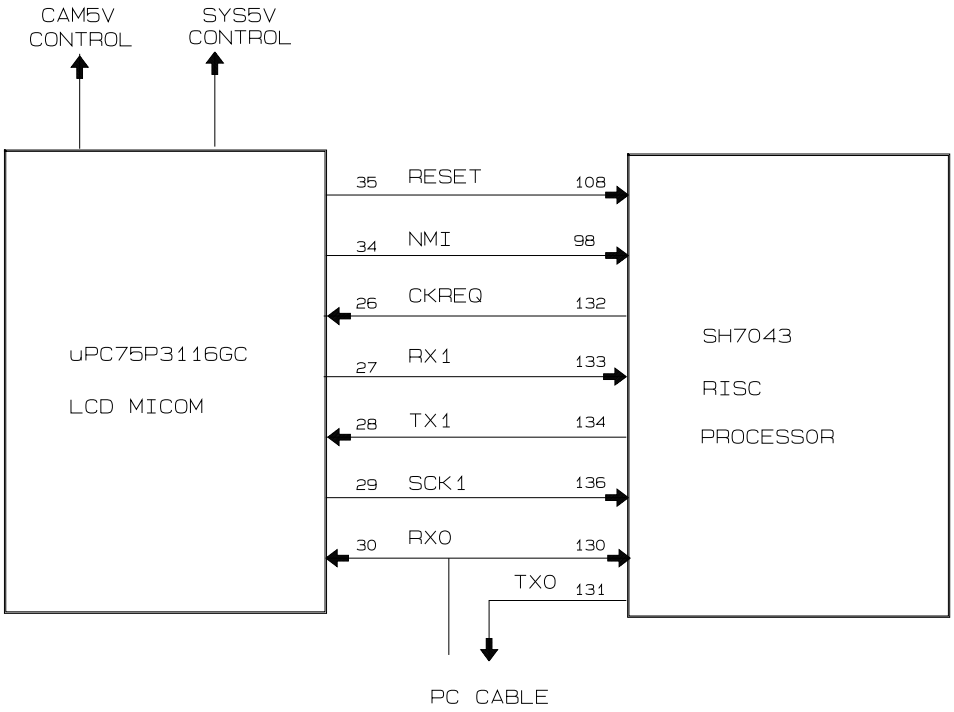


Fig. 2-7

1. 4-bit MICOM; Functions and connections

1) PIN connection status
- RISC is connected to the 4-bit MICOM (total 7 lines).
- Pins 98, 130, and 108 and SCI No. 1 are used.
- Pins 132, 133, 134, and 136 are used for communication with 4-bit MICOM.
- Synchronized communication is used with 4-bit MICOM.

2) Function
- RISC is usally in the standby mode (low-power) because it consumes so much current when it operates.
- 4-bit MICOM acknowledges the starting time (for example, when the user pushes the shot key) and sends the NMI pin signal to RISC, so that the standby mode can be changed to the operation mode. The information is sent to RISC through communication port. After RISC executes the appropriate program, it returns to the standby mode.

2. Main function of 4-bit MICOM

- Power ON/OFF: 4-bit MICOM turns the PC (main body) on, and turns on the RISC.

- Execution of shot: When the shot is executed by the PC key (or main body), 4-bit MICOM signals the shot execution to RISC. When the shot is finished (system 5V and head power 5V), 4-bit MICOM changes the RISC mode to standby mode.

- Delay shot: When the delay shot is executed by the PC key (or main body), 4-bit MICOM signals the RISC and supplies the system 5V and head power 5V. Then, the RISC changes to standby mode.

- Mode change: When the mode is input by the PC key (or main body), 4-bit MICOM signals the RISC. When the mode is changed, 4-bit MICOM displays it on LCD, and changes the RISC to standby mode.

- Delete execution: When the delete instruction is input by the PC key (or main body), 4-bit MICOM signal the RISC and changes the RISC to standby mode.

- LCD display: DSC status is displayed.

- Error handling: When an error occurs, (or RISC) the error message is displayed on LCD. If the RISC cannot operate, the power is automatically off.

- Battery operation: The capacity of battery is classified as "Full", "Half", "Low", or "Battery replacement". For the "Battery replacement" status, only the power on/off function is available, and other functions cannot operate.

- Auto power OFF: When any operation has not been executed (three minutes for main body operation, or 10 minutes for PC operation) the power automatically turns off.

3. Main functions of RISC processor

- Communication with 4-bit MICOM: RISC operation is completely controlled by the 4-bit MICOM. A synchronization method is adapted for communication between 4-bit MICOM and RISC (with 8-bit*11 byte communication).

- DRAM control: RISC processor includes internal BSC. BSC helps RISC to control the DRAM. RISC uses DRAM as though it were internal RAM (with the help of BSC). BSC generates all DRAM control signals by itself. RISC uses DRAM for the image buffer, temp memory for the calculation, and an area that manages the flash memory and FAT(File Allocation Table).

- Camera Head control: RISC handles the control of the camera head during the shot. RISC controls the timing generator, ASIC, etc. so that the image data from CCD can be transferred.

- Signal processing: RISC executes the signaling processing internally with CCD image data stored in DRAM. After RISC separates CCD data into RGB, and processes detail and gamma, it creates a YUV signal, and executes JPEG compression. The compressed JPEG data will be stored in DRAM again.

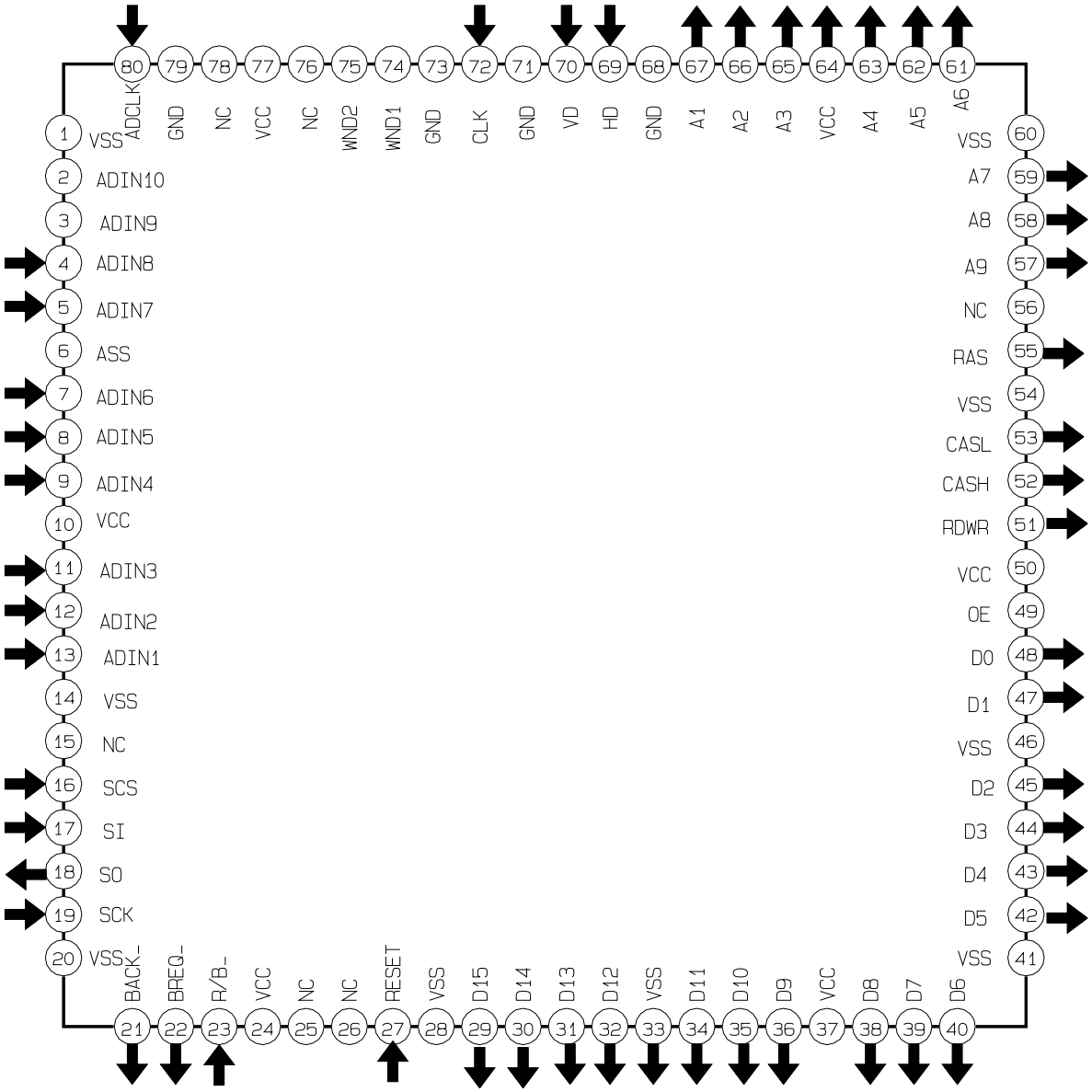
- Flash memory control: The compressed data (in DRAM) is stored in the flash memory. The file management program is recorded in RISC, and manages the files in the flash memory (file location, file size, etc).

- PC communication: RISC processor receives the signal from PC (4-bit MICOM) and activates up RISC. Then, RISC processor sets the flag for the request input from PC, and transfers the flag to RISC. The RISC communicates with PC through the serial port. (PC always requests the PC communication to DSC, but RISC does not request it from the PC.)

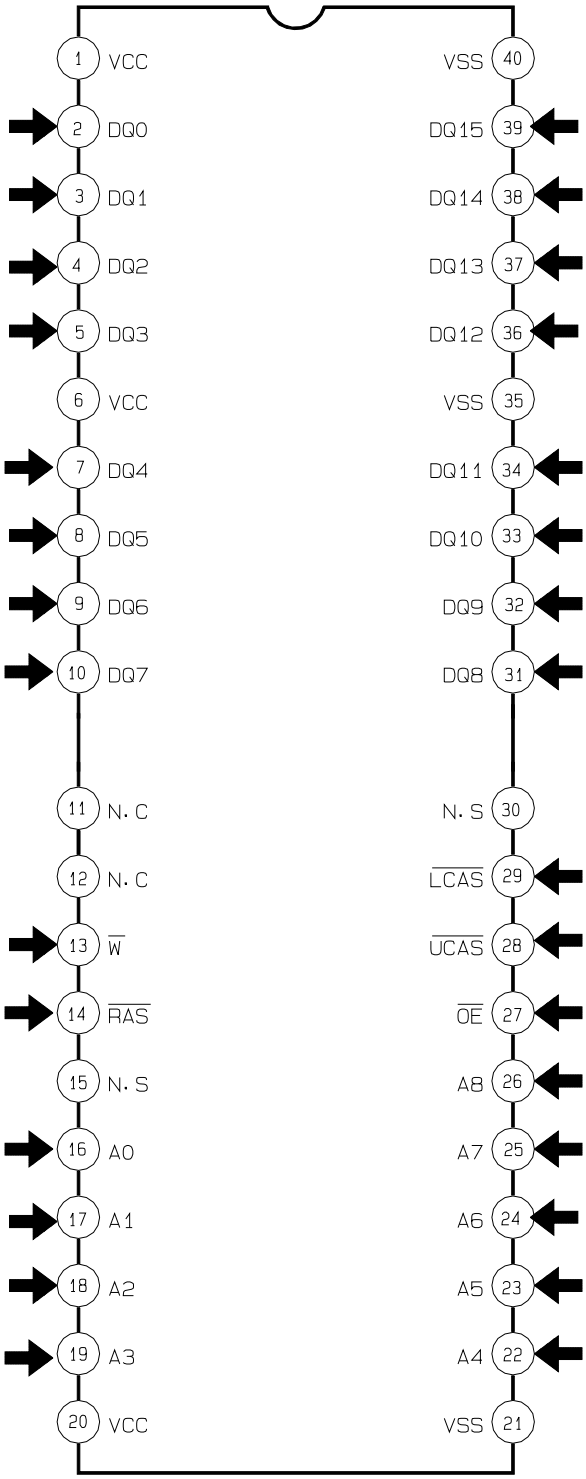
- Battery level checking: Battery indicator, which is displayed in LCD of 4-bit MICOM, accepts the data from RISC. Battery level checking is executed when the camera head and main board are on. When new battery is inserted, it outputs 6.2V; but the actual voltage drops below 6V after supplying power to the camera head and main board.

2-2 IC Blocks

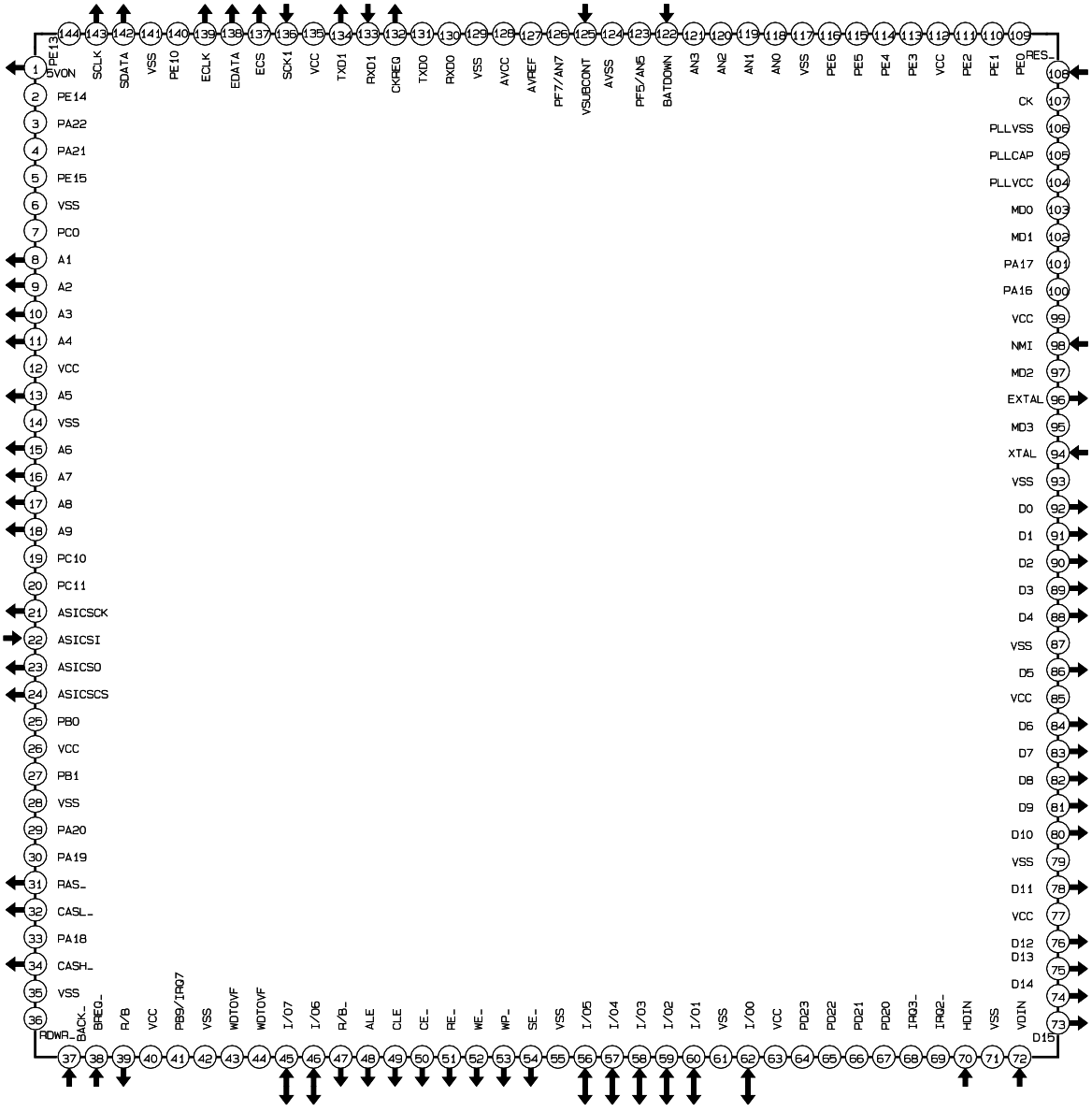
2-2-1 IC301 (SMA9606)



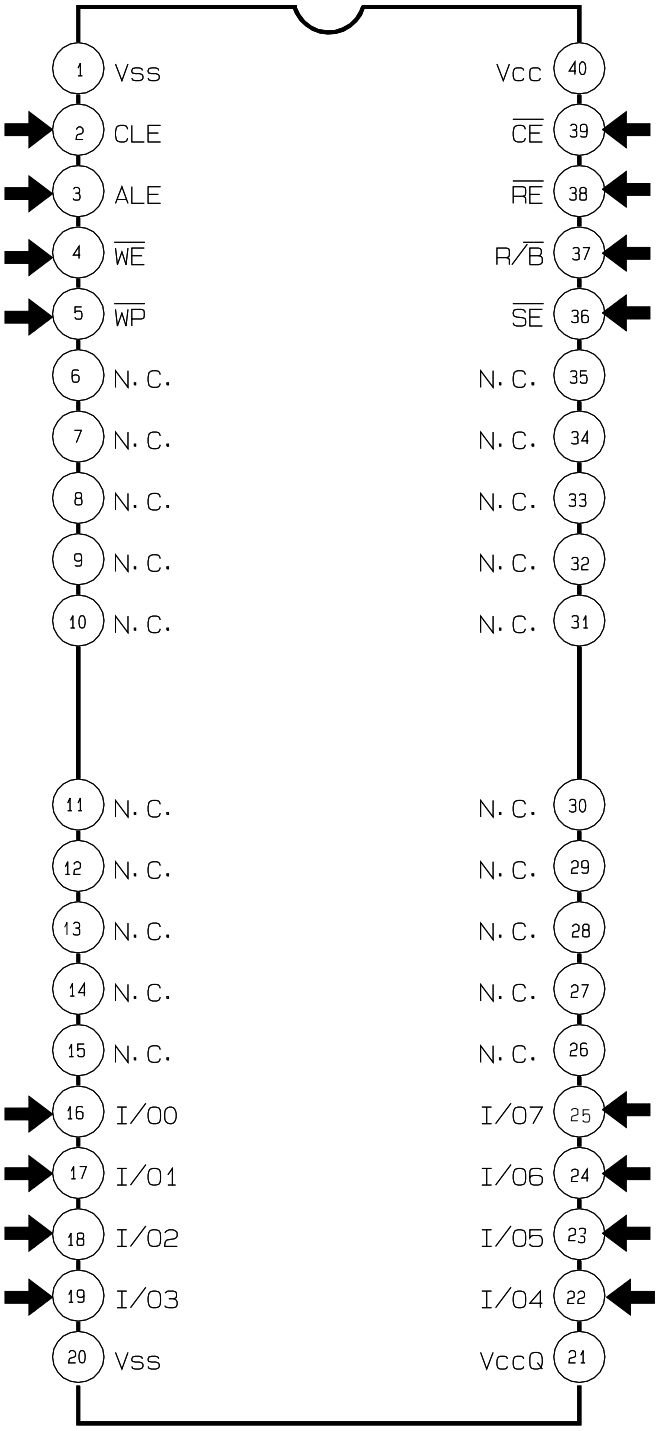
2-2-2 IC302 (KM416C256BLT)



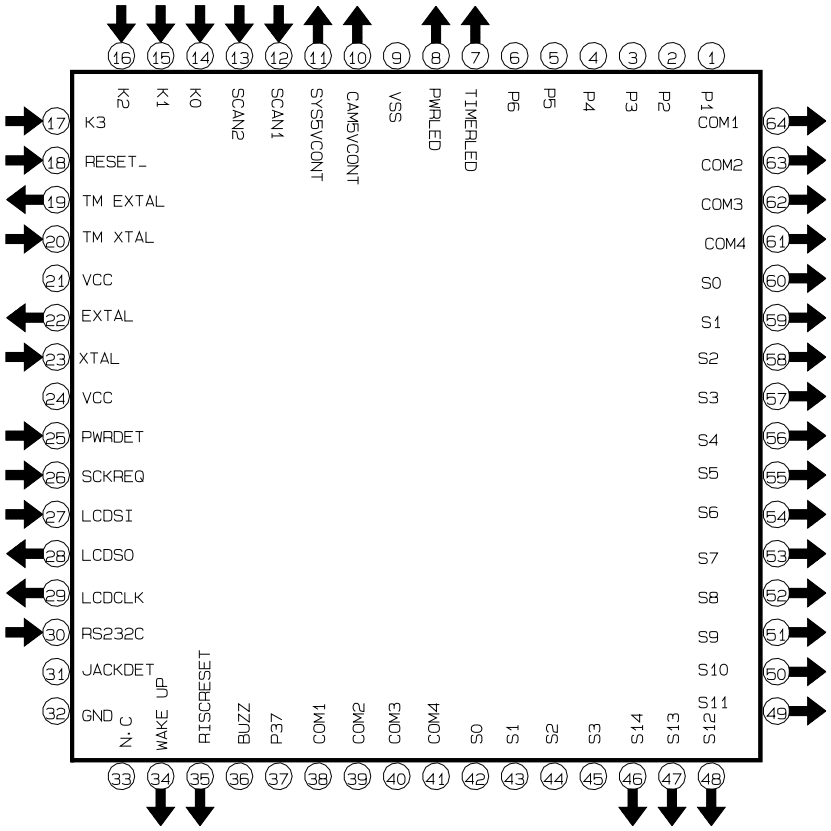
2-2-3 IC304 (HD6477043)



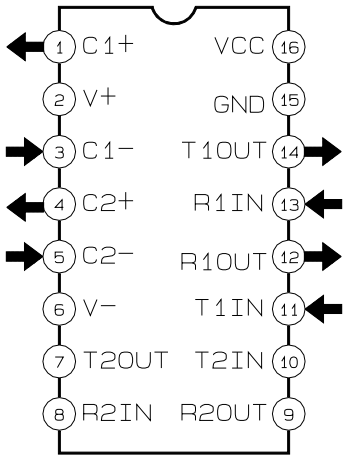
2-2-4 IC307 (TC5832FT)



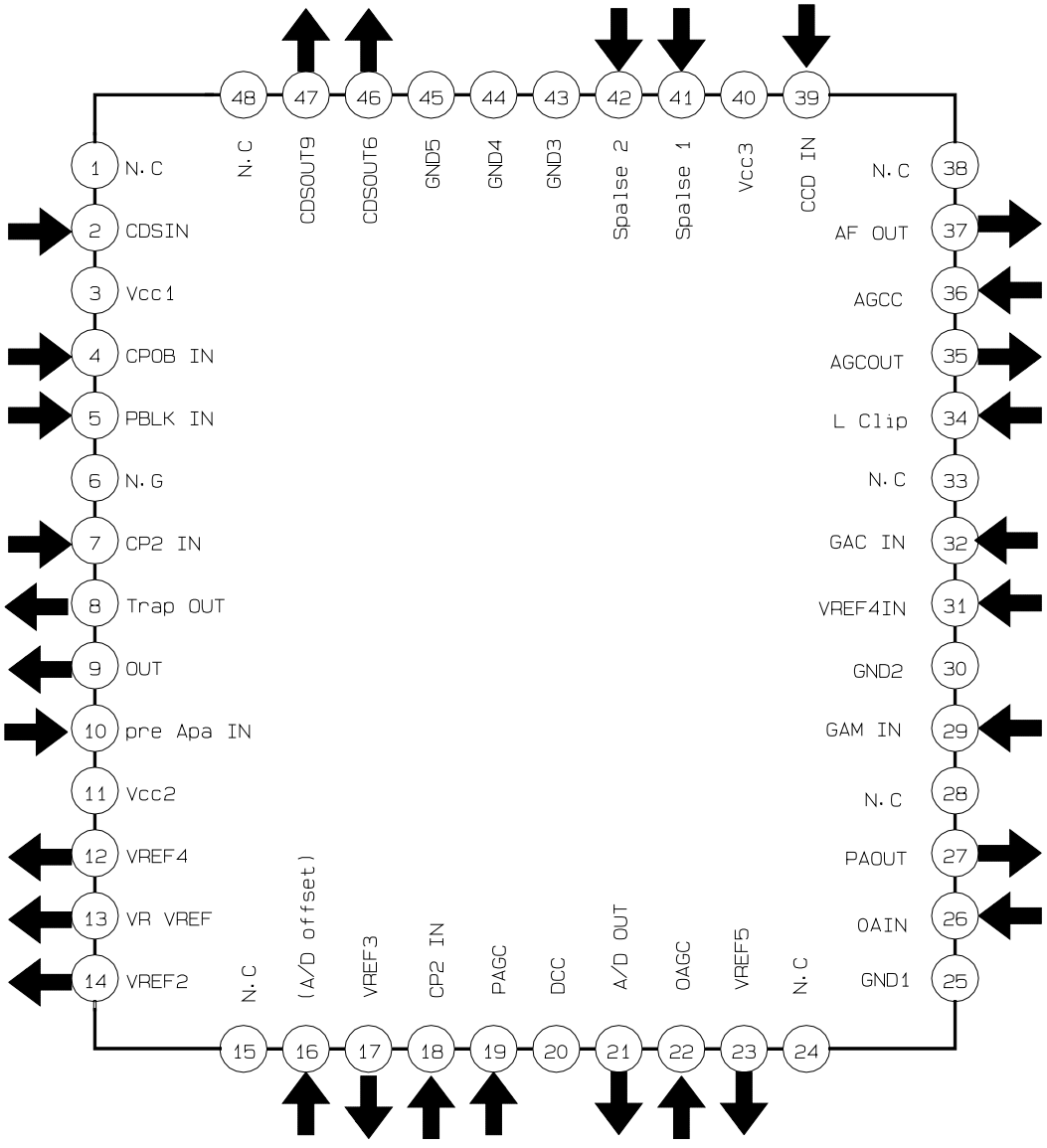
2-2-5 IC601 (UPD75P3116GC)



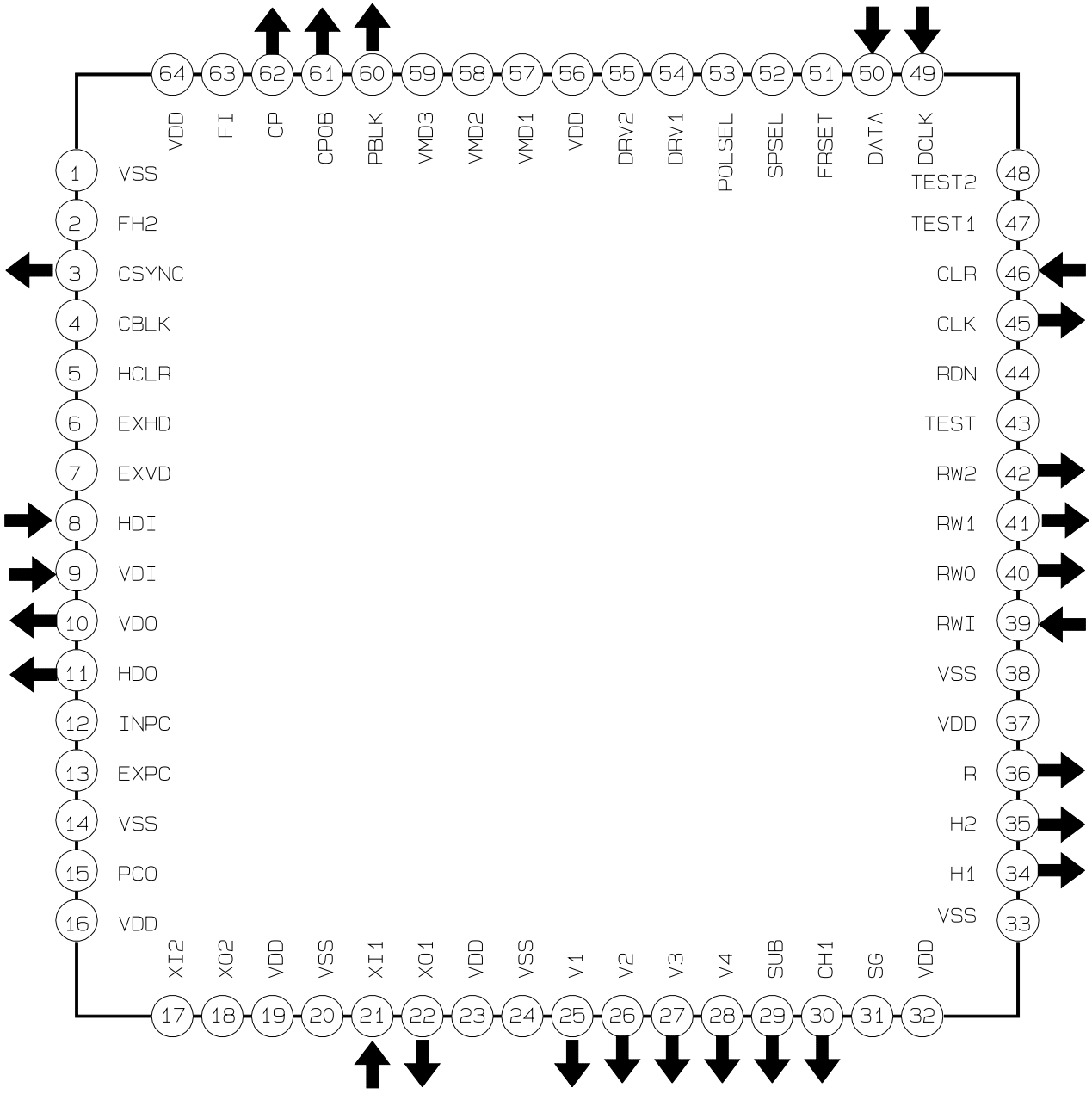
2-2-6 IC501 (MAX232C)



2-2-7 IC203 (NN2038FAQ)



2-2-8 IC204 (NN5248)



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3. Product Specifications

Design and specifications are subject to change without notice.

Operation	Descriptions	
	SDC-30	SDC-33
Image sensor	350,000 pixel CCD	350,000 pixel CCD
	(STD) :640 X 480 pixels (ECO)20 X 240 pixels	(STD) :640 X 480 pixels (ECO) : 320 X 240 pixels
Color depth	24 bit true color (16million colors)	24 bit true color (16million colors)
Memory	2MB internal flash memory	4MB internal flash memory
Image capacity	Standard (STD) : 22 images	Standard (STD) : 45 images
	Economical (ECO) : 88 images	Economical (ECO) : 180 images
Compression	Standard JPEG	Standard JPEG
Lens	Fixed focusing	Fixed focusing
Range	100 cm (3.3 feet) - infinity	100 cm (3.3 feet) - infinity
Viewfinder	Separate optical	Sparate optical
Shutter	Auto electronic (1/4 ~ 1/8000 seccond)	Auto electronic (1/4 ~ 1/8000 seccond)
Exposure system	Auto exposure	Auto exposure
Color balance	Automatic White Balance (AWB)	Automatic White Balance (AWB)
Sensitivity	ISO 100	ISO 100
Picture formats	BMP, JPG, PCX, PNG	BMP, JPG, PCX, PNG
	PSD, TGA, TIF, TPL	PSD, TGA, TIF, TPL
Supported OS	Windows 3.1 or higher (Including Windows 95)	Windows 3.1 or higher (Including Windows 95)
PC requirements	RAM : 8MB or more	RAM : 8MB or more
	HDD : 30MB or more (free space)	HDD : 30MB or more (free space)
	CPU : 486DX or higher (IBM PC based)	CPU : 486DX or higher (IBM PC based)
	CD- ROM drive (recommended)	CD- ROM drive (recommended)
PC Interface	Standard RS-232C (9600 -115200bps)	Standard RS -232C (9600 -115200bps)
Image transfer time (speed)	(STD) Standard images : 7~8 sec. (at 115Kbps)	(STD) Standard images : 7~8 sec. (at 115Kbps)
	(ECO) Economy images : Under 2 sec. (at 115Kbps)	(ECO) Economy images : Under 2 sec. (at 115Kbps)
Power	4AA TYPE alkaline batteries	4AA TYPE allaline batteries
	6V DC in using AC adaptor (not supplied)	6V DC in using AC adaptor (not supplied)
Power consumption	At power on : below 500mA	At power on : below 500mA
	At power off : below 500uA	At power off : below 500uA
Battery life	More than 200 images using new alkaline batteries	More than 200 images using new alkaline batteries
Dimensions	115(W) X 75(H) X 38(D)mm	115(W) X 75(H) X 38(D)mm
Net weight	140g (without batteries)	140g (without batteries)

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4. Disassembly and Reassembly

4-1 Cabinet and PCB

Disassemble in the order shown.
(Reassemble in reverse order.)

4-1-1 Case-Side Removal

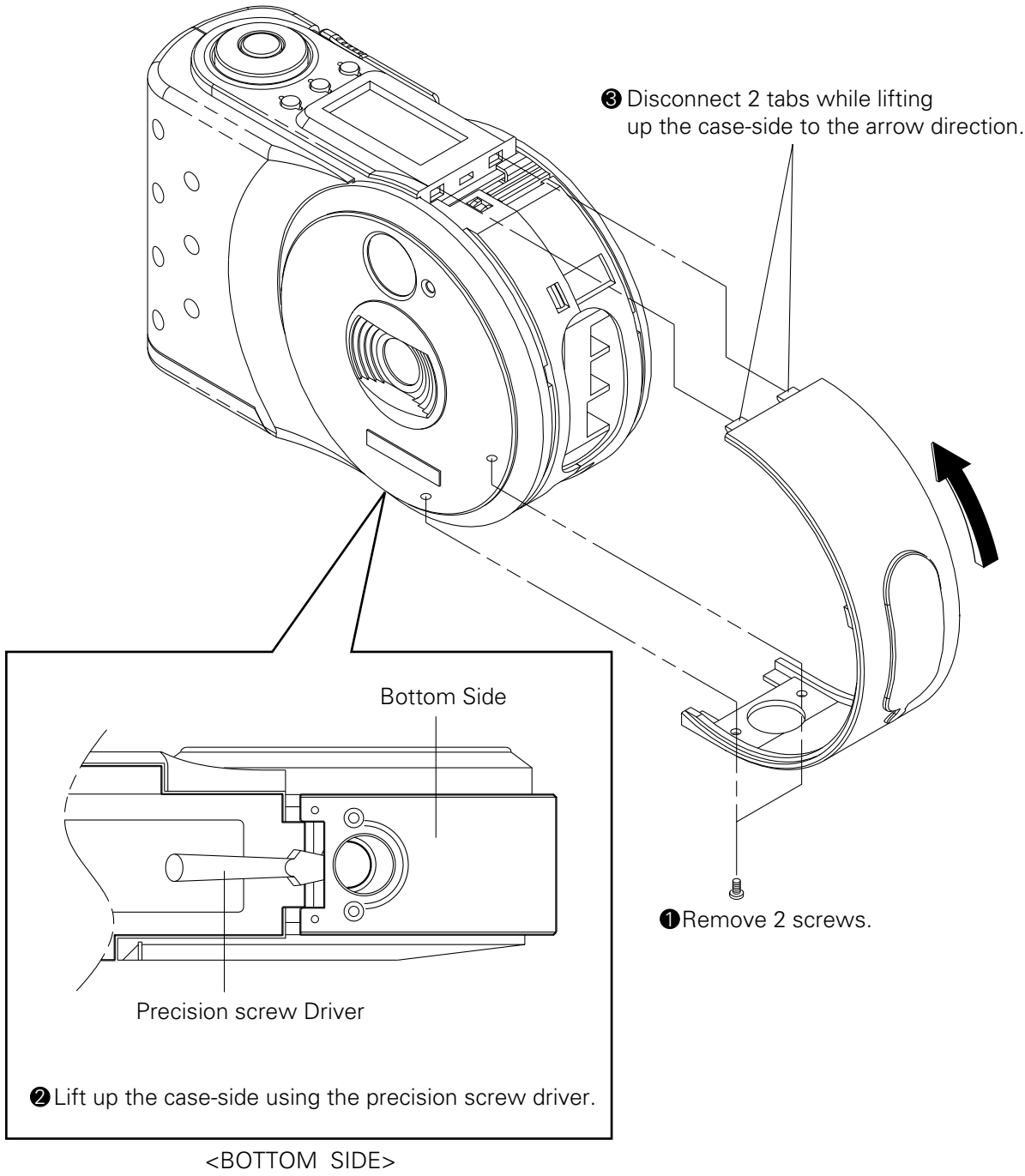

❸ Disconnect 2 tabs while lifting
up the case-side to the arrow direction.
❶Remove 2 screws.
Bottom Side
Precision screw Driver
❷ Lift up the case-side using the precision screw driver.
<BOTTOM SIDE>

Fig. 1

4-1-2 Door-Battery Removal

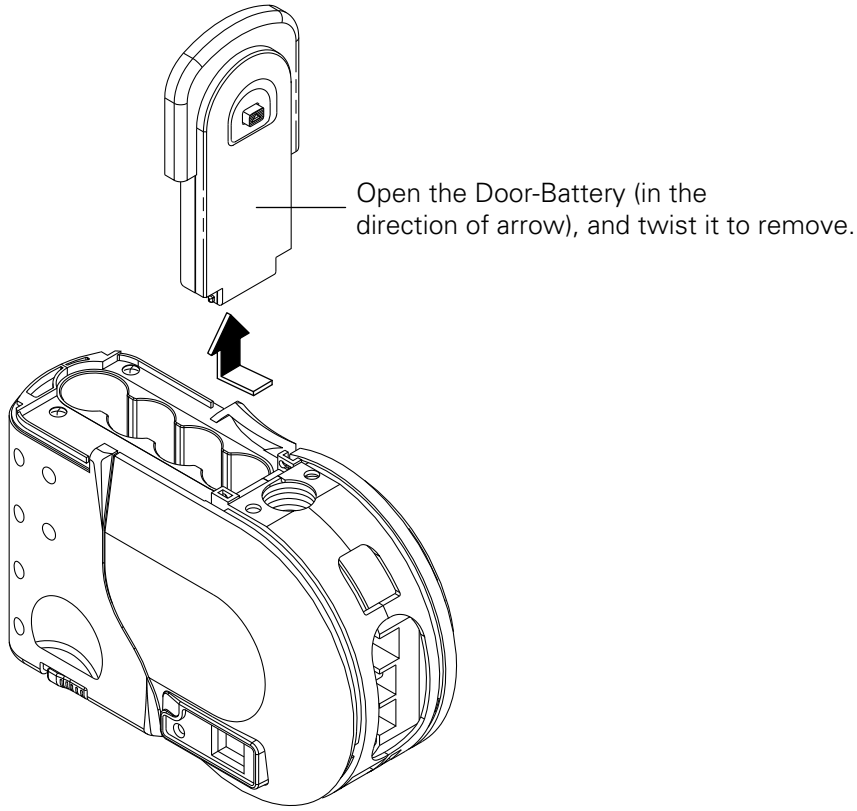


Fig. 2

4-1-3 Case-Rear Removal

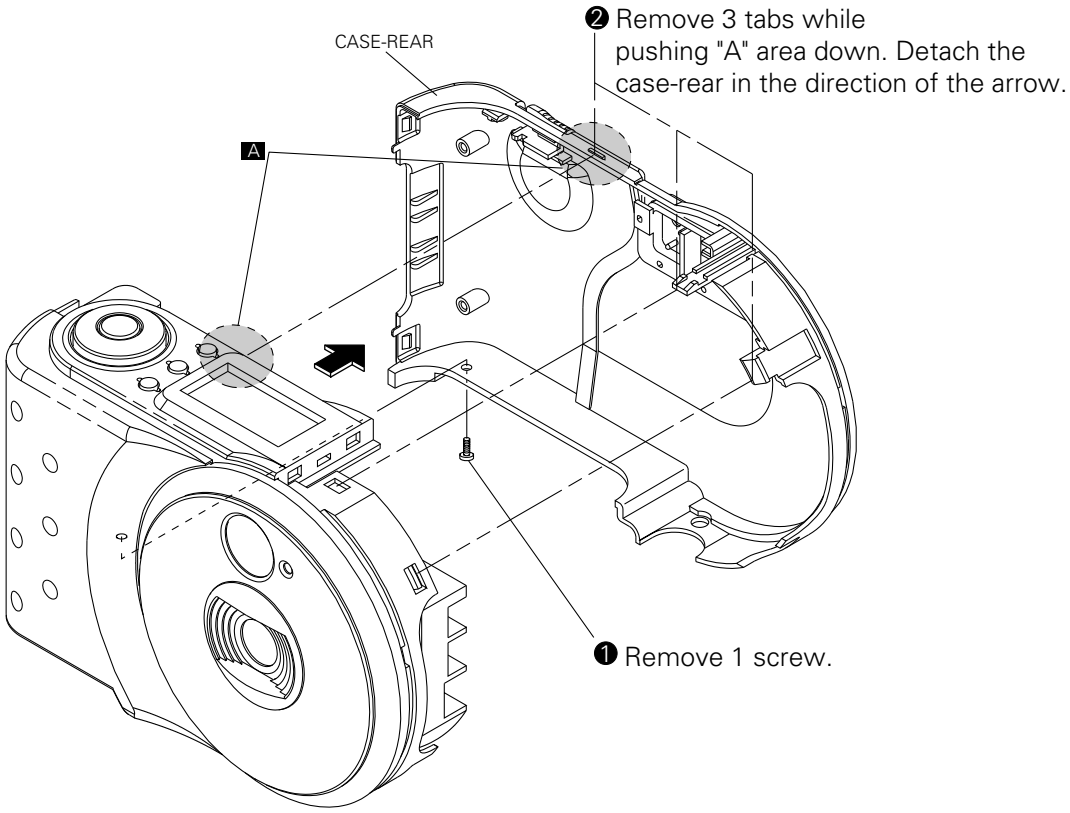


Fig. 3

4-1-4 Main-PCB Removal

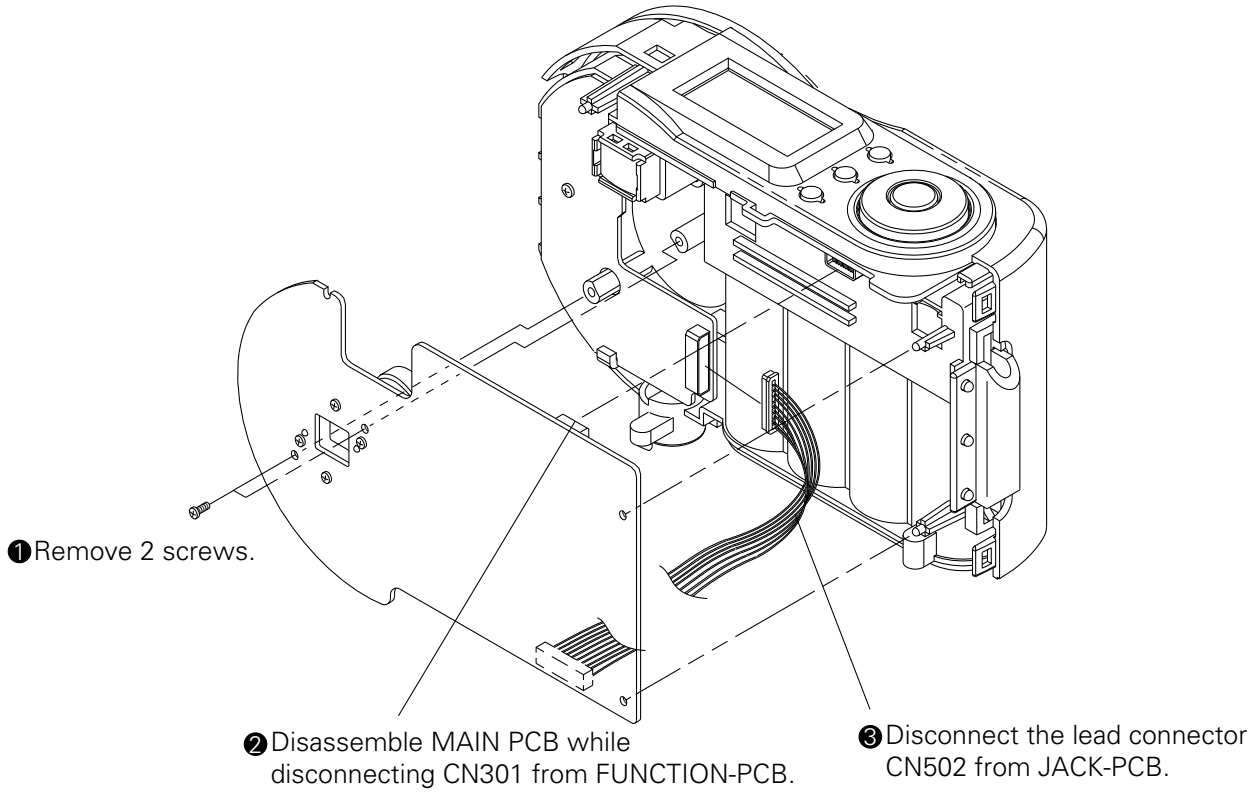

❶Remove 2 screws.
❷Disassemble MAIN PCB while disconnecting CN301 from FUNCTION-PCB.
❸Disconnect the lead connector CN502 from JACK-PCB.

Fig. 4

4-1-5 Jack-PCB Removal

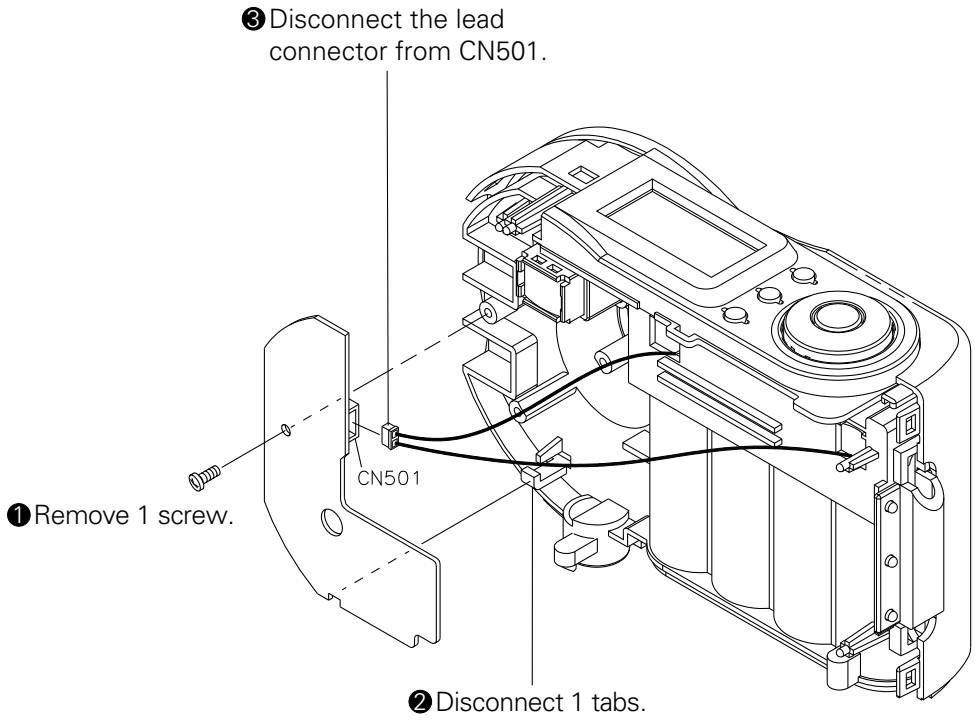


Fig. 5

4-1-6 Case-Top Removal

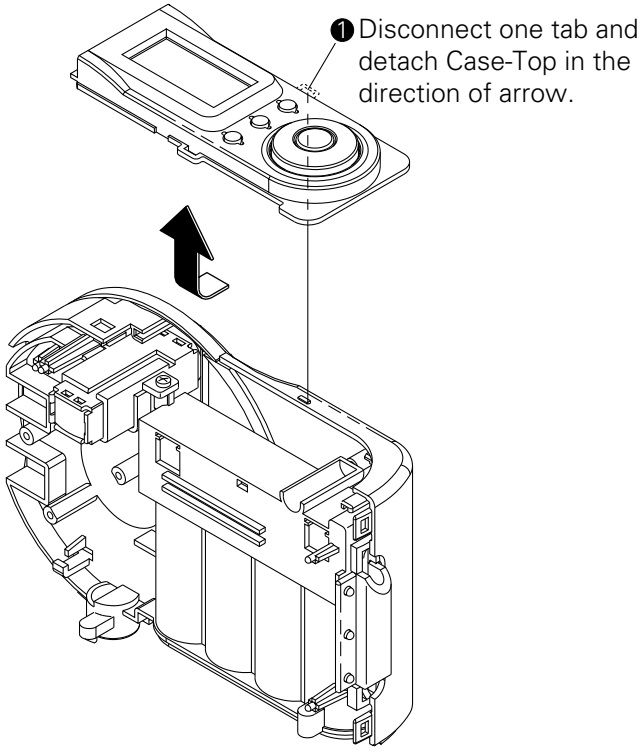


Fig. 6

4-1-7 Case-Front Removal

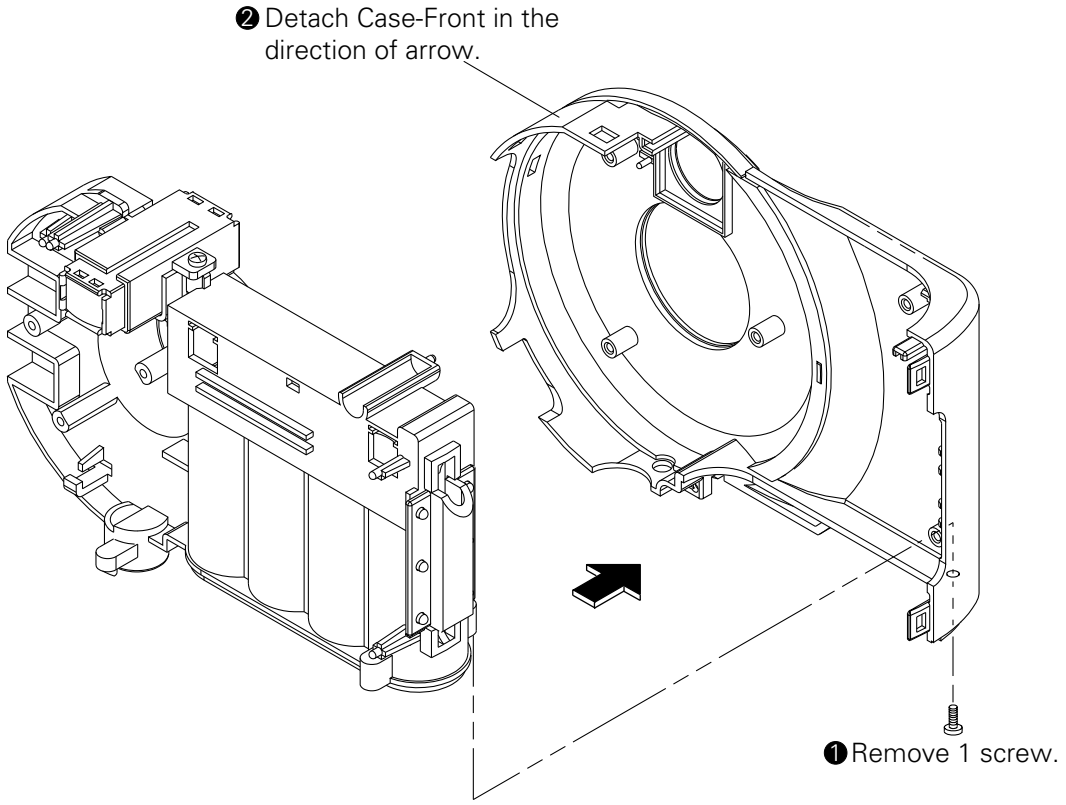


Fig. 7

4-1-8 OVF Removal

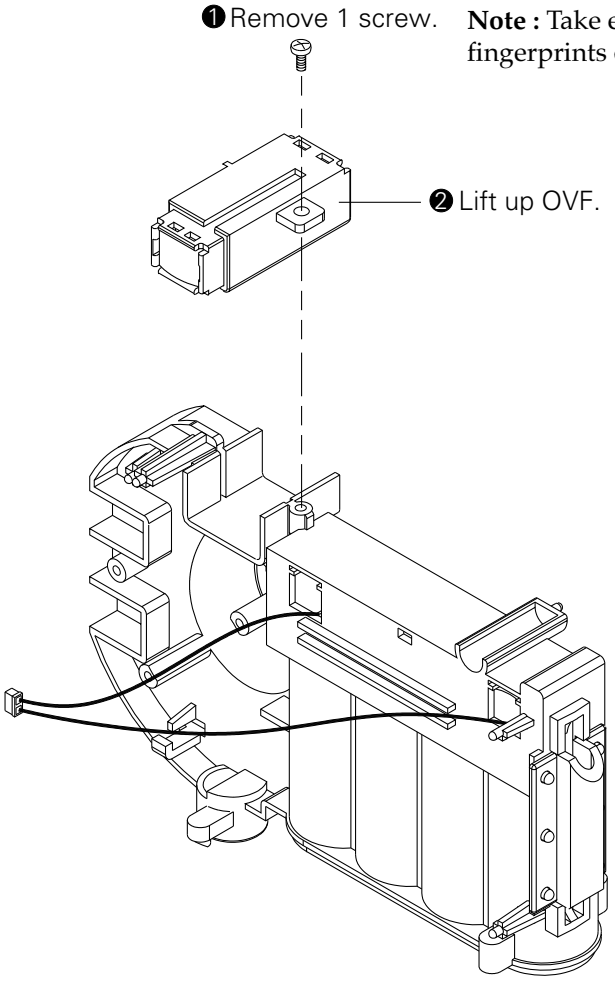


Fig. 8

MEMO

5. Alignment and Adjustments

WARNING: The main board should be replaced if the back focus is twisted.

Note : Ther is no need to adjust the focus for changing the CCD only

5-1 Camera Adjustment

Note : DNP 3100°K light box, 5100°K color temperature conversion filter and adjustment program. A PC is needed for camera adjustment

- Flash memory format : Configure the system, and store the "bad block" information
- V-Sub voltage adjustment : Adjust the V-Sub voltage of CCD. (Refer to table on page 5-4)
  * AE_BTM adjustment : Adjust the offset of image from A/D converter, and set the reference to black
  * 3100°K AWB reference measurement : Take a shot of the white chart (3100°K), and extract the reference at 3100°K.
  * AGC gain adjustment : Extract the AGC gain of 0dB, 6dB
  * 5100°K adjustment:
    Take a shot of the white chart (5100°K), and extract the reference at 5100°K.

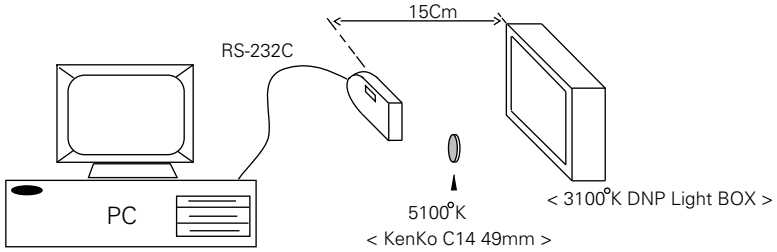


Fig. 5-1

5-2 Installing and using special softwre (on diskette)

Note: Special software handles the camera adjustment and fault diagnostics. This diskette isn't distributed to consumers, and should be used only if a fault occurs. It allows internal disconnection state without camera disassembly. It simulates the read, modify, and write functions of camera control value.

5-2-1 Environment

* IBM compatible
* Windows 95
* Mouse
* 256 color (or more) video card
* Hard disk (5 MByte or more)
* Supplied program diskette (3.5")

5-2-2 Functions

* DRAM test
* Flash memory test
* ASIC test
* LCD test
* Vsub value adjustment
* AWB(Auto White Balance) 3100°K ,5100°K adjustment
* Display image on PC after shot

5-2-3 Program installation

* Perform setup.exe.
* Perform SVC.exe (use directory made by setup.exe).

5-2-4 Program initial execution and adjustment

1. Initial execution

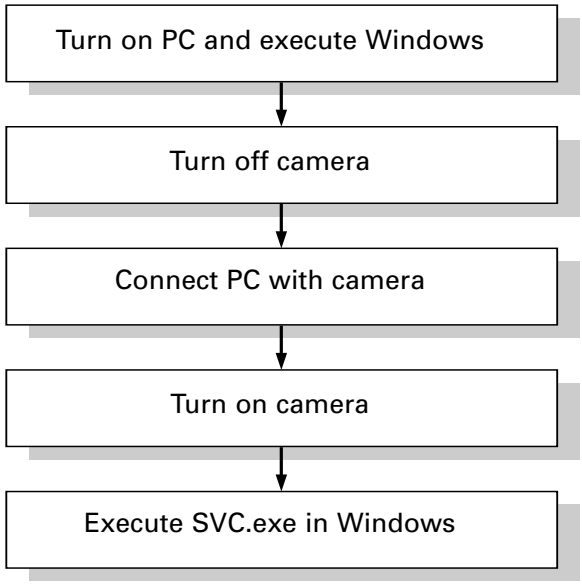


Fig.5-2

2. Initial screen of program

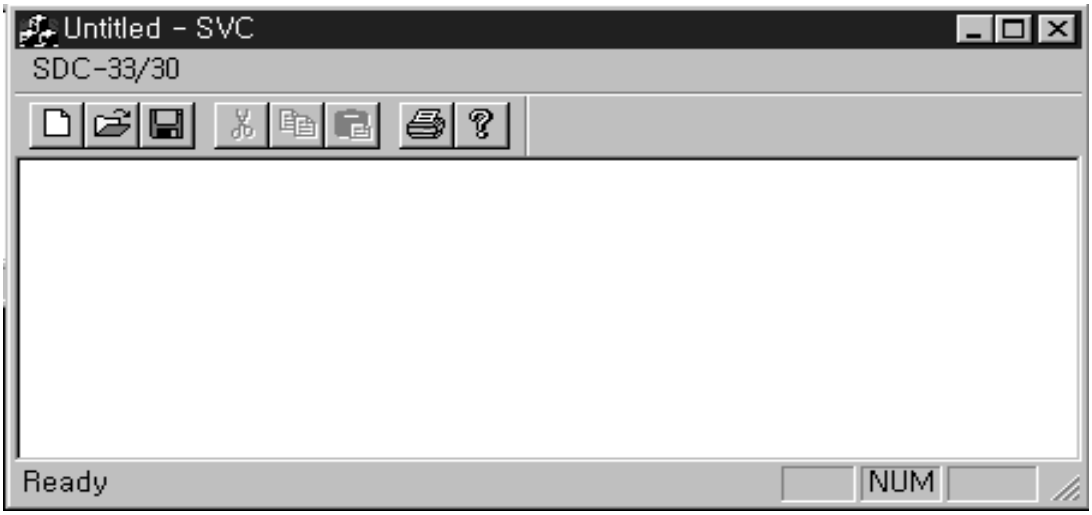


Fig. 5-3 Initial screen at execution of SVC.exe

1) The window (Fig. 5-3) appears at execution of SVC.exe.
2) It should be tested or adjusted in the following sequence.

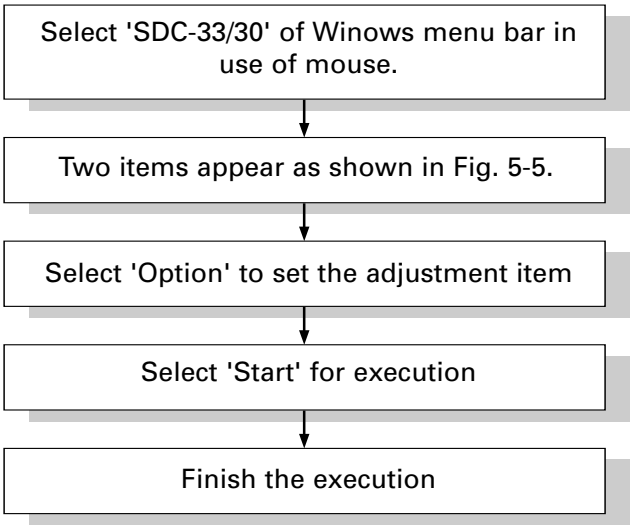

Select 'SDC-33/30' of Winows menu bar in use of mouse.
Two items appear as shown in Fig. 5-5.
Select 'Option' to set the adjustment item
Select 'Start' for execution
Finish the execution

Fig. 5-4

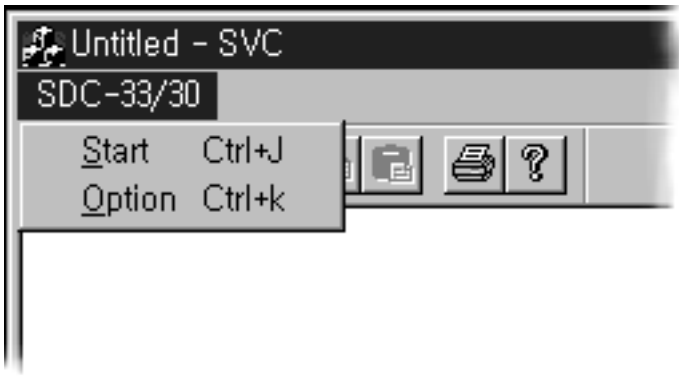


Fig. 5-5 Select 'SDC-33/30' of menu bar

3. 'Option' window

1) When selecting 'Option', Fig. 5-6 is displayed.

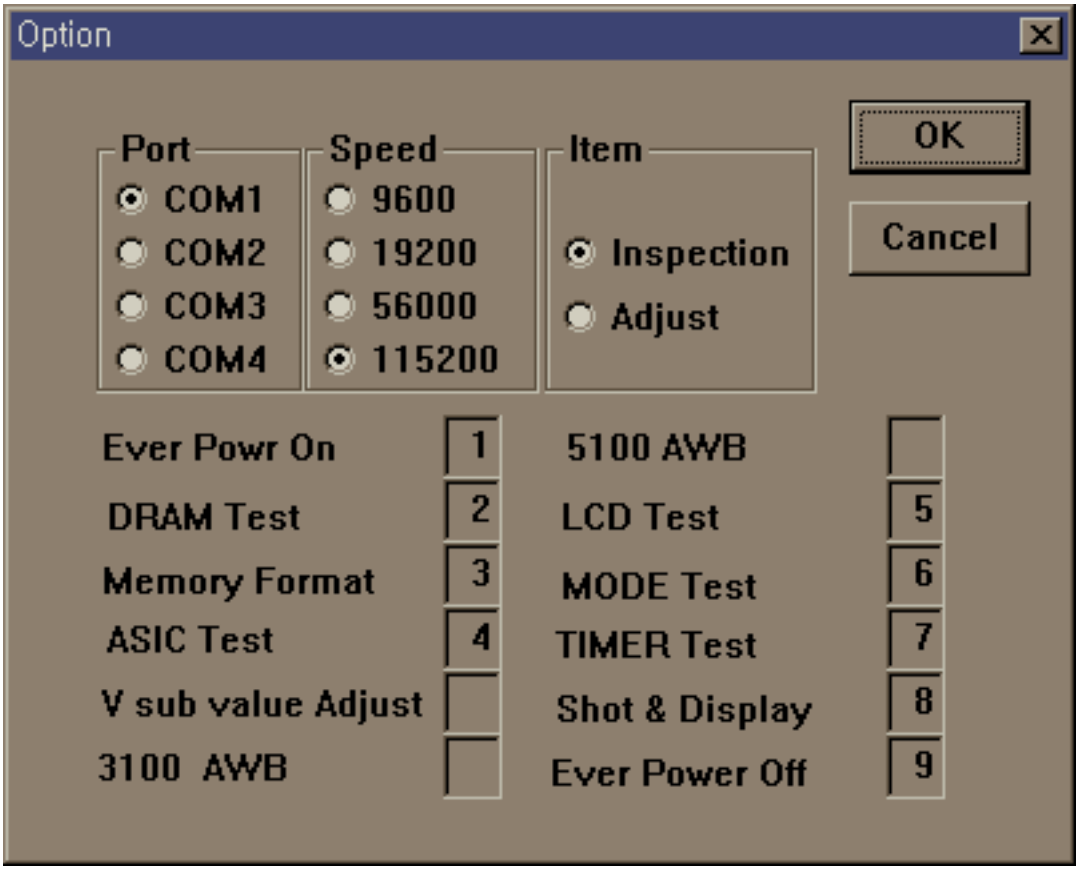
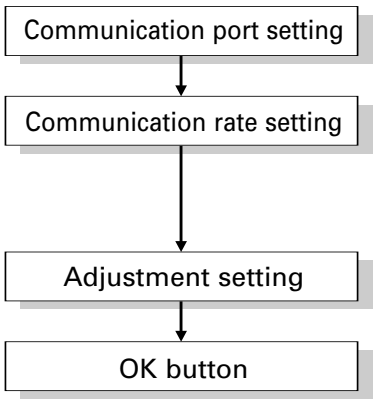


Fig.5-6 Option Window

2) Follow this procedure when setting the options in Fig. 5-6.



: Select the communication port connected with PC

: Select the communication rate between DSC and PC.
Generally 56000 is used If an error occurs during communication, reduce the communication rate (9600 is minimum communication rate, and 115200 is maximum).

: Test decision : Use the camera disconnection function, or change the internal adjustment value. (Refer to Fig. 5-9)

: When the above items are set, select 'OK' and complete the adjustment preparation.

Fig. 5-7 Option window setting

3). Adjustment execution

1) SEE Fig. 5-6. Press O.K. The screen will appear as in Fig. 5-3.
2) Select 'Start' of SVC menu to display the window shown in Fig. 5-8.

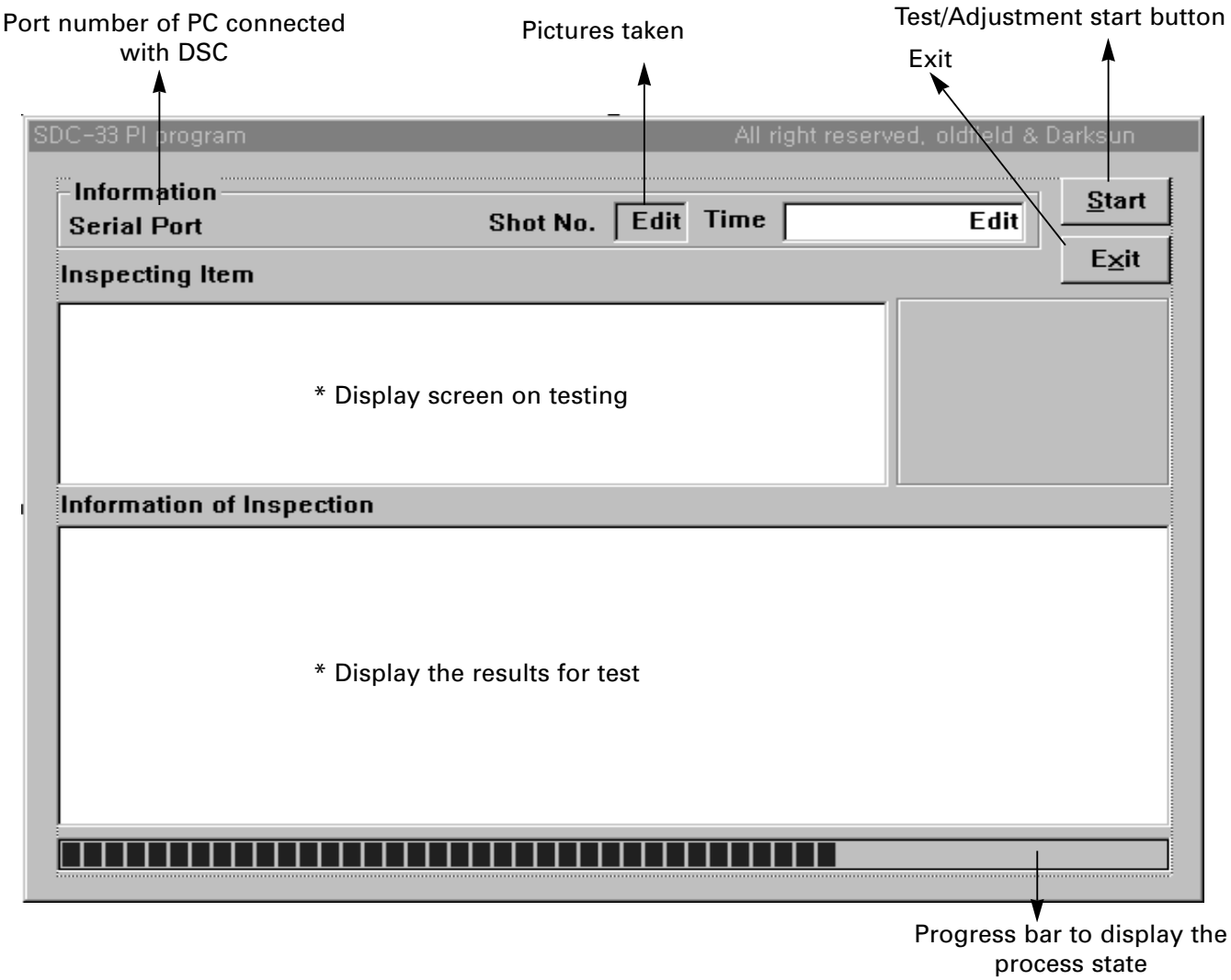


Fig. 5-8 Execution window of test/adjustment

4) Execute the program in accordance with the sequence of Fig. 5-6.

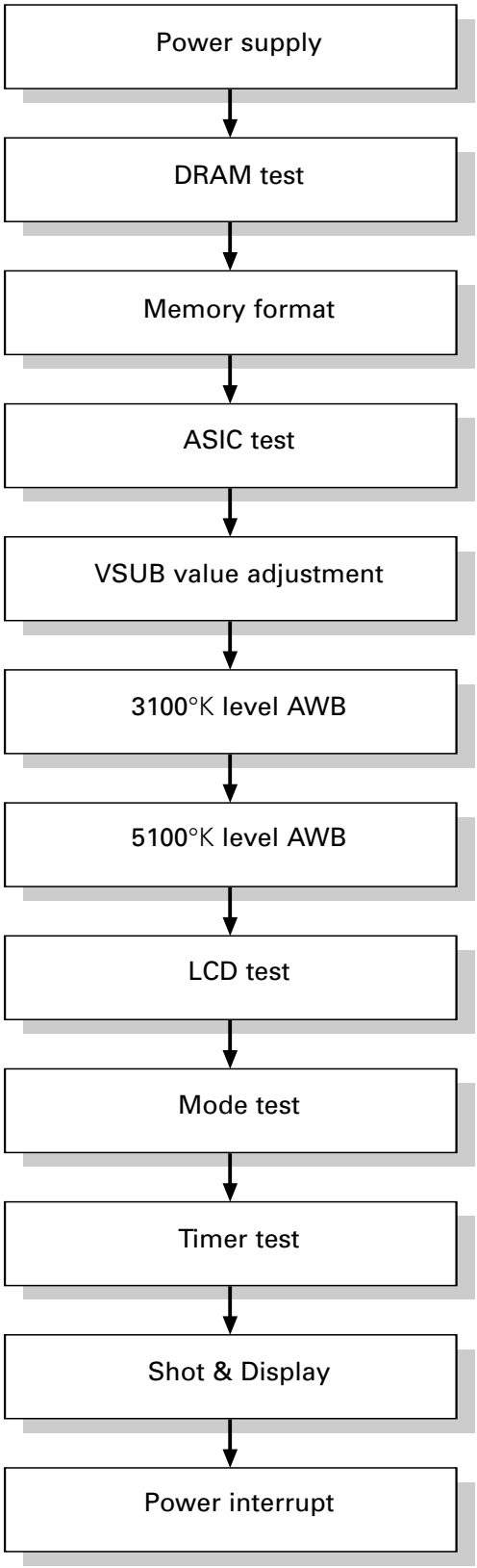


Fig. 5-9 Process and procedure of adjustment

4, Adjistment item

Power supply : Supply power to the entire camera

DRAM test : Check connections between DRAM and RISC

Memory format : Check the flash memory state. The various information and image management data are stored as usual in the flash memory.

Fig. 5-10

* Normal memory : Go to the next step with 'Formatted' message.

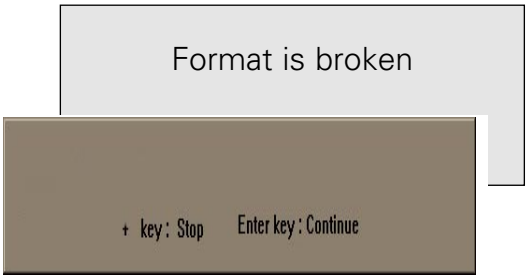


Fig. 5-11

* Abnormal memory : Display the window to ask for compulsory format with 'Format is broken' message as shown in Fig. 5-11. Press 'Enter' of PC keyboard to retry memory format. Press '+' to enter the next step without formatting. (If formatted, all image data are deleted.)

* Key : Stop Enter key : Continue

* Replace with new memory : When replacing with memory (due to memory error), go to the next step after automatic formatting.

ASIC test : Check for disconnection state between ASIC, RISC and DRAM and ASIC function.

: Input V-SUB value. (Always refer to the table in oppend it before inputting, because picture quality is affected). (Fig.5-14)

VSUB value adjustment : Adjust AWB 3100°K level. This process should be done with 3100°K level chart active throughout the screen. (Be certain to use it, because picture quality is affected.)

3100°K level AWB : Adjust AWB 5100°K level. This process should be done with 5100°K level chart active throughout the screen, and color temperature con version filter should be attached to the camera. (Be certain to use it, because picture quality is affected.)

5100°K level AWB

Fig. 5-12

LCD test	: Check each segment of camera LCD screen. Press 'Enter' key to stop and enter the next step.
Mode test	: Test the a into shot mode. The camera has two types of shot functions: VGA(640*480) and QVGA(320*240). Test both of these mode conversions.
Timer test	: Check the delay shot On/Off of camera. Display the result by means of self On/Off without special operation.
Shot and Display	: Display the thumbnail after the shot to determine normal or abnormal operation.
Power interrupt	: Shut off the camera's power supply after completion of all tests. Proceed to the adjustment step.

Fig. 5-13

CCD MARKING	V-sub VOLTAGE	PC INPUT TEXT
40	4.0	5.9
45	4.5	6.7
50	5.0	7.5
55	5.5	8.4
60	6.0	9.2
65	6.5	10.0
70	7.0	10.9
75	7.5	11.7
80	8.0	12.5
85	8.5	13.4
90	9.0	14.0
95	9.5	14.9
A0	10.0	15.7
A5	10.5	16.5
B0	11.0	17.4
B5	11.5	18.2
C0	12.0	19.0
C5	12.5	19.9
D0	13.0	20.9
D5	13.5	23.0

Fig. 5-14 V-Sub voltage

5. Process for adjustment failure

* Communication port XX cannot be used. Select another port.
  -> Cannot use com port XX. Select another com port.

* RISC Processor isn't active.
  -> RISC Processor does not respond.

* Can't receive the specified data data count from camera.
  -> Camera Communication Error.

* There is a fatal error in <NG> DRAM circuit.
  -> DRAM Test error occured.

* A fatal error occurs during <NG> ASIC test.
  -> ASIC Test error occured.

* A fatal error occurs during <NG> Vsub adjustment.
  -> V-sub adjust error occured. (Fig.5-14)

* Memory has been previously formatted.
  -> Memory was already formatted.

* An error occurs in flash memory.
  -> Flash Memory has defective area.
  -> Flash Memory clearing error occured.
  -> Flash Memory system block error occured.

* New flash memory.
  -> Flash memory is rare.

* B value is larger than R value in <NG> 3100°K level test.
  -> 3100°K AWB adjust error (B > R). RG xx / BG yy);

* R value exceeds the range in <NG> 3100°K level test.
  -> 3100°K AWB adjust error (R value is out of bound). RG xx

* B value exceeds the range in <NG> 3100°K level test.

  -> 3100°K AWB adjust error (B value is out of bound). BG yy

* R value is larger than B value in <NG> 5100°K level test.

  -> 5100°K AWB adjust error (B > R) . RG xx / BG yy

* R value exceeds the range in <NG> 5100°K level test.

  -> 5100°K AWB adjust error (R value is out of bound) . RG xx

* B value exceeds the range in <NG> 5100°K level test.

  -> 5100°K AWB adjust error (B value is out of bound) . BG yy

5-2-5 Using the software

1. Edit S/W installation and use (iPhoto express of Ulead company based)

1) Insert CD-ROM (in Windows 95 environment).
2) Complete the installation according to the instructions on screen.

Note: Select 'iPhoto Express Tour' in Help menu to see the detailed instructions for Edit S/W. All functions of Edit S/W are explained with figure.

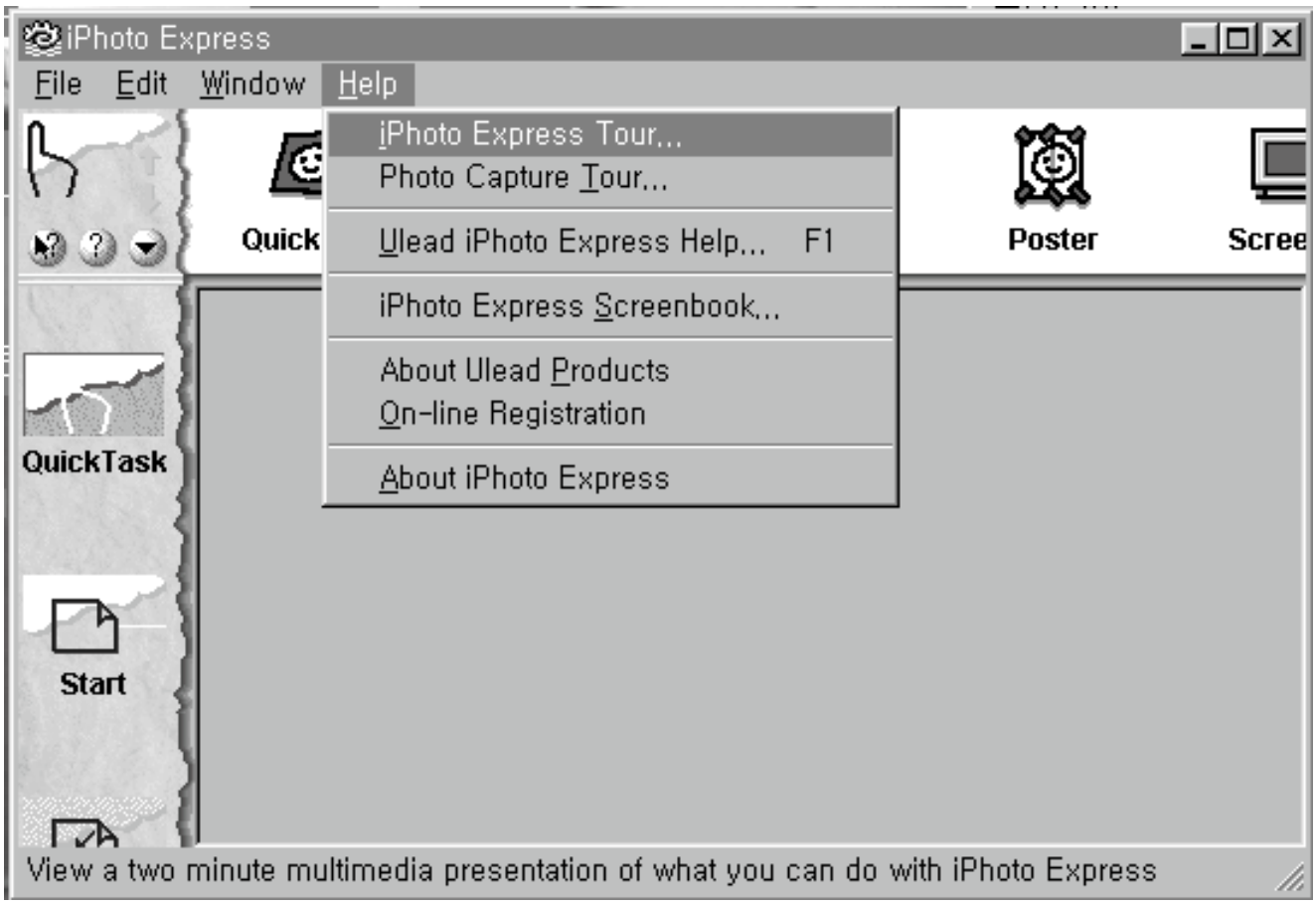


Fig.5-15

2. Twain driver installation

1) Execute setup.exe in TWAIN intallation diskette under Windows 95 environments.
2) Complete the installation according to the instructions on screen.

3. Twain driver preparation

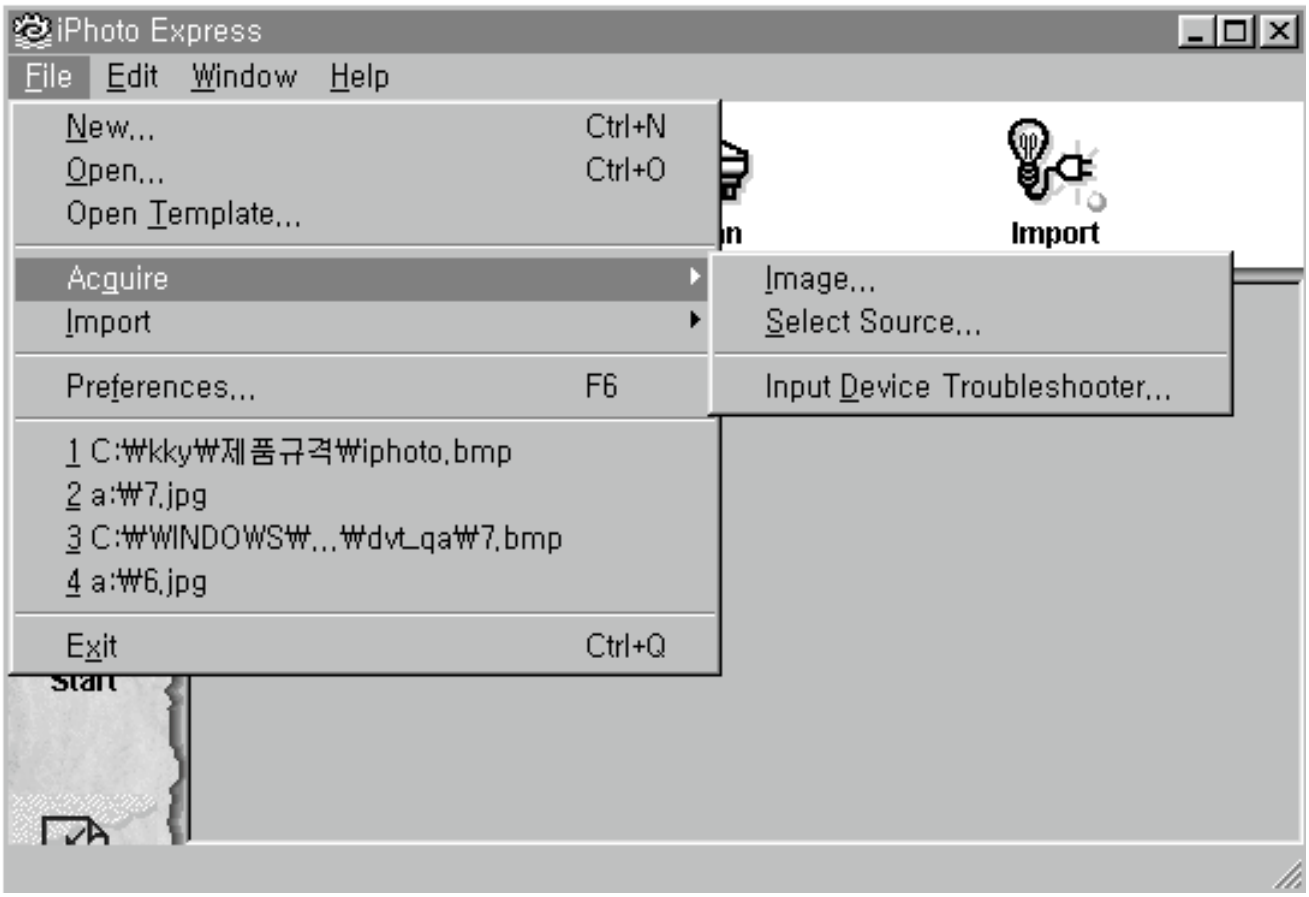


Fig.5-16

1) Execute TWAIN compatible edit program
   (Photo Impect, Video Studio, iPhoto Express, Photo Shop Pro. etc
2) Select Acquire->Select Soruce->Samsung Digital Camera TWAIN in file menu of edit program
3) Connect the digital camera with PC in use of RS-232C cable and power on.
4) Select Acquire->Image->Acquire in file menu operate TWAIN driver and display the thumbnail image in the camera.
5) Transmit the original image to PC by clicking the desired screen on TWAIN driver (or pressing the select all button and Download button).
6) The basic operation is finished by storing a particular file name.

4. TWAIN driver use

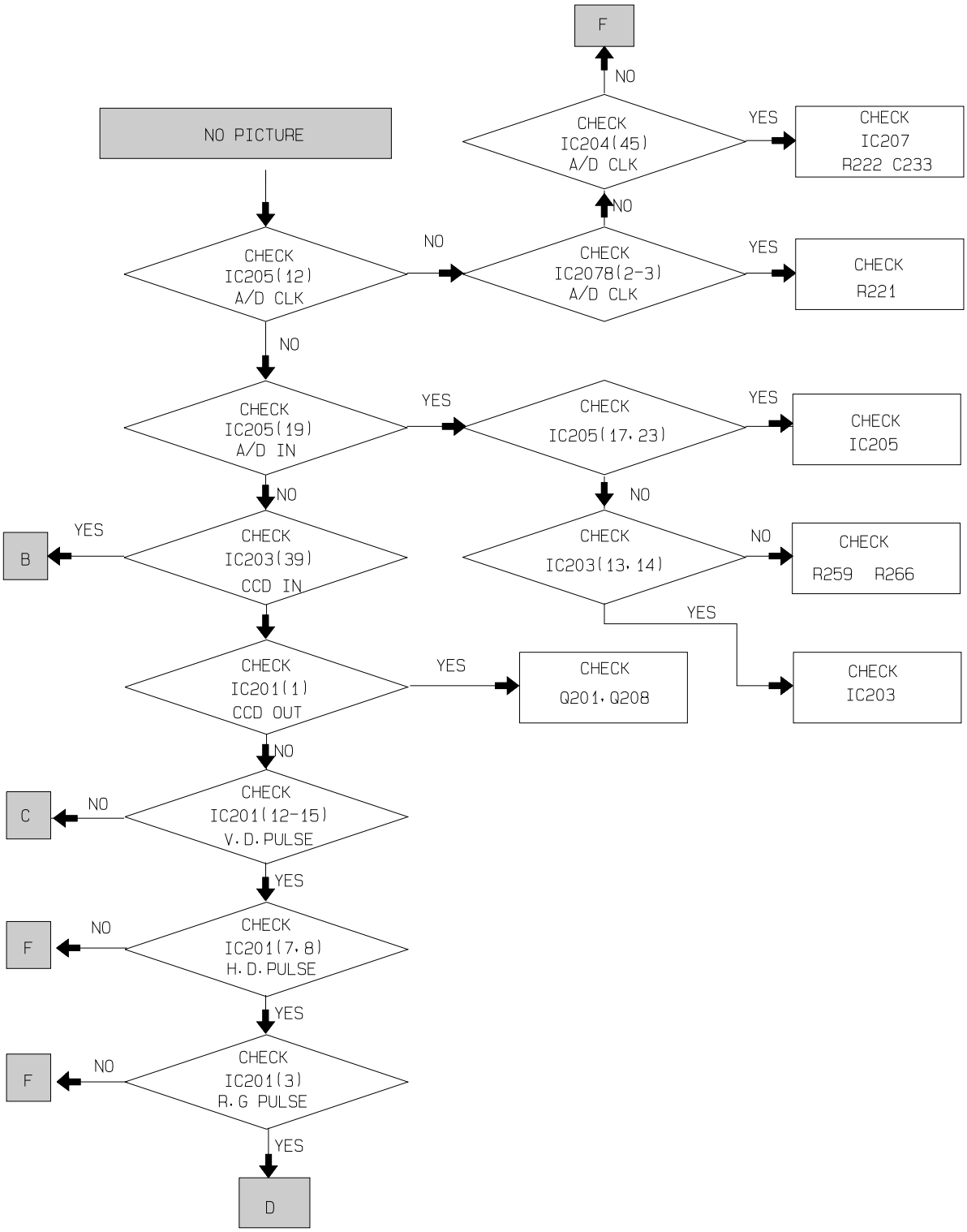
Fig.5-17

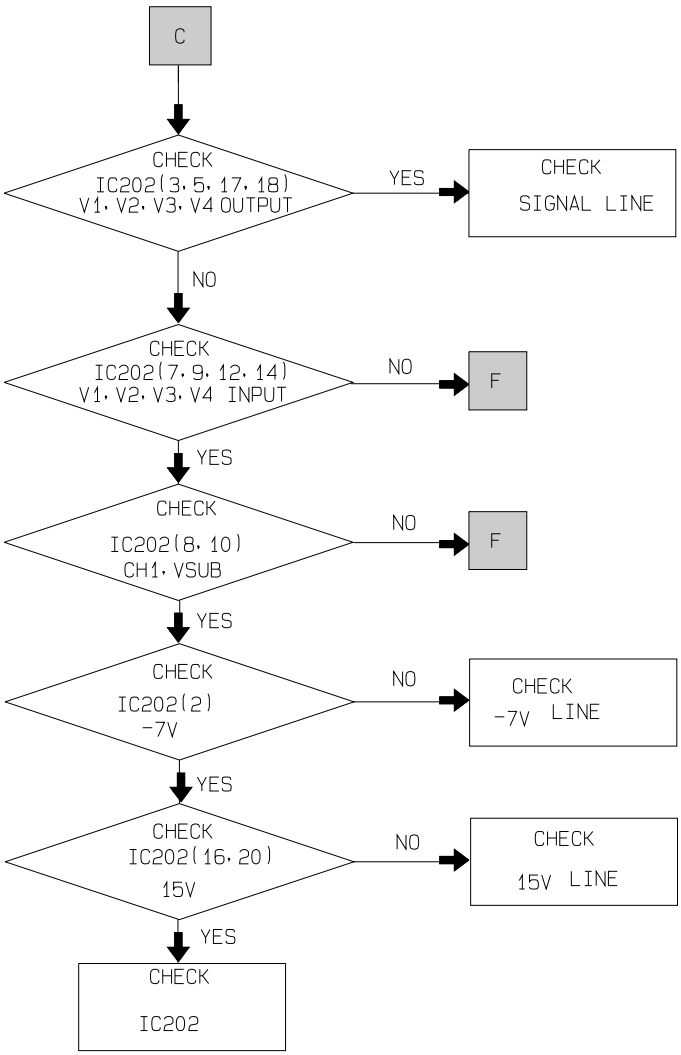
Brief descriptions for other functions (except image transmission function on TWAIN driver) :

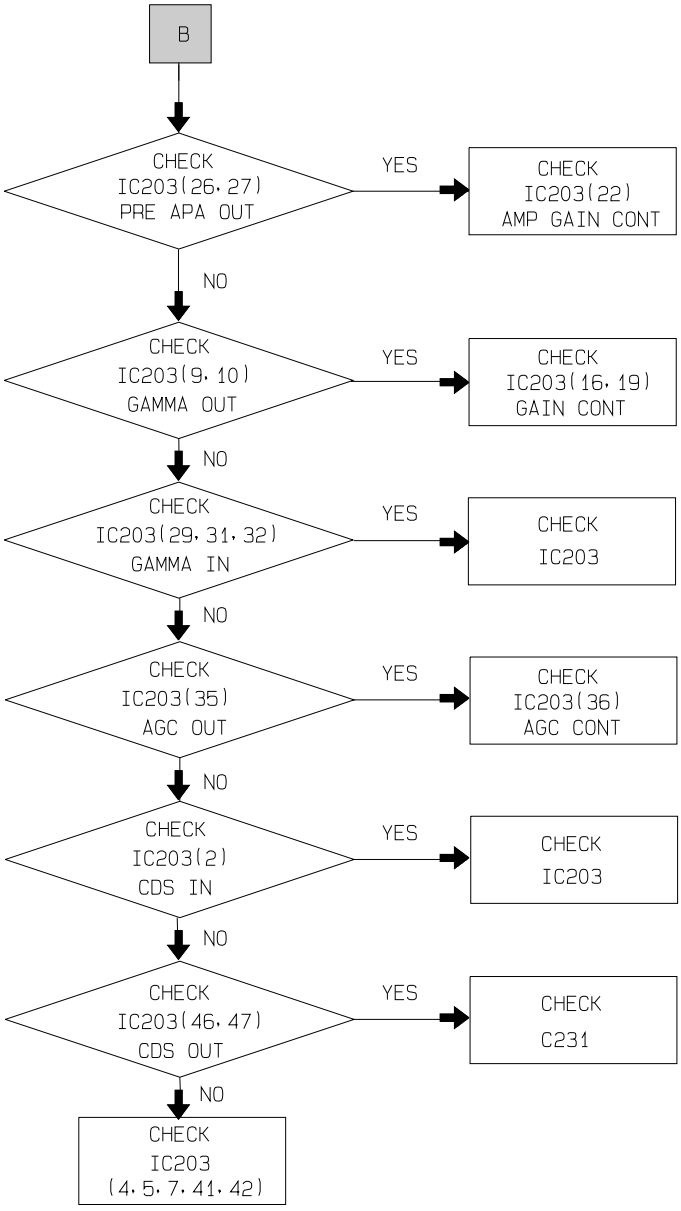
- Option : Select communication rate
- Update : Execute Update when camera state changes
- Delete : Delete unnecessary screen.
- Shot : Shot
- Timer : Self timer function
- Mode : Switch the size (VGA/QVGA) of screen
- Download : Transmit the selected screen to PC
- Exit : Exit TWAIN driver
- Select All : Select entire screen
- PgUp/PgDn : Display the previous and next screen (by page 5)
- RowUp/RowDn : Display the previous and next screen (by row)

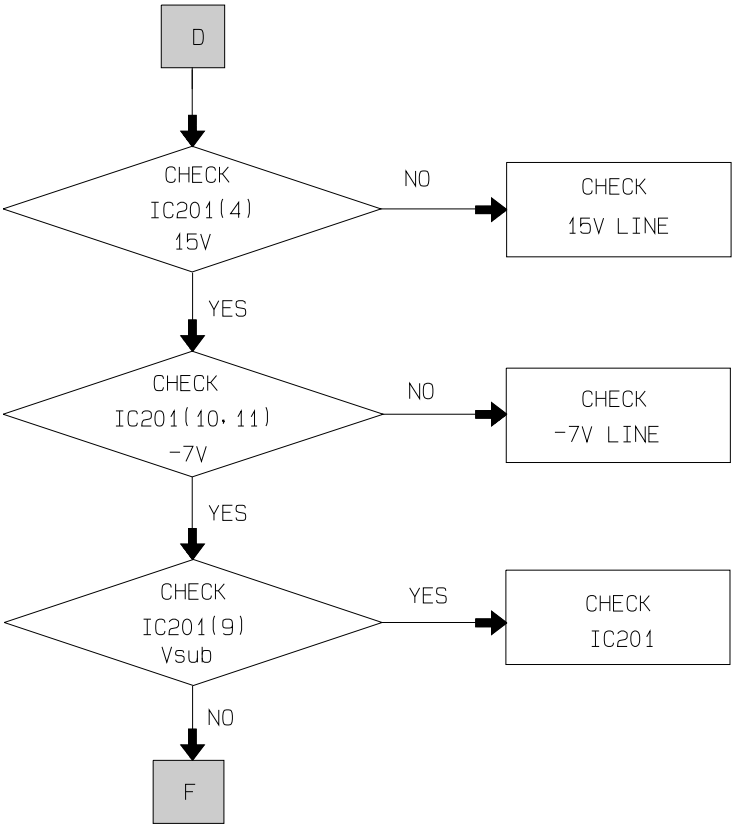
MEMO

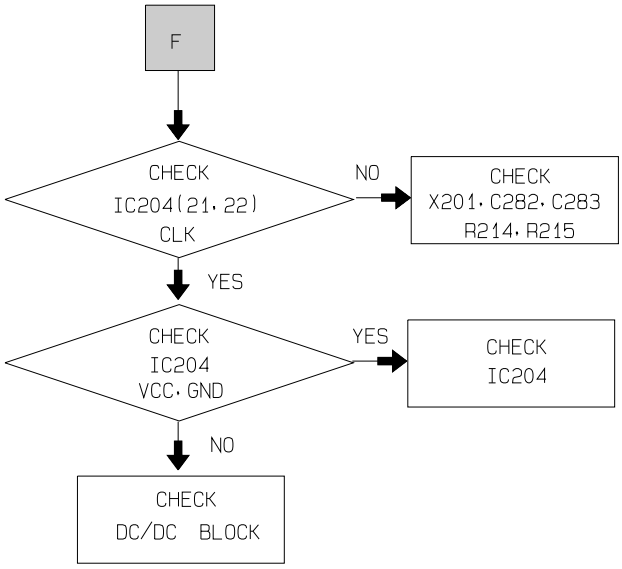
6. Troubleshooting




C
CHECK
IC202(3, 5, 17, 18)
V1, V2, V3, V4 OUTPUT
YES
CHECK
SIGNAL LINE
NO
CHECK
IC202(7, 9, 12, 14)
V1, V2, V3, V4 INPUT
NO
F
YES
CHECK
IC202(8, 10)
CH1, VSUB
NO
F
YES
CHECK
IC202(2)
-7V
NO
CHECK
-7V LINE
YES
CHECK
IC202(16, 20)
15V
NO
CHECK
15V LINE
YES
CHECK
IC202


B
CHECK IC203(26,27) PRE APA OUT
YES
CHECK IC203(22) AMP GAIN CONT
NO
CHECK IC203(9,10) GAMMA OUT
YES
CHECK IC203(16,19) GAIN CONT
NO
CHECK IC203(29,31,32) GAMMA IN
YES
CHECK IC203
NO
CHECK IC203(35) AGC OUT
YES
CHECK IC203(36) AGC CONT
NO
CHECK IC203(2) CDS IN
YES
CHECK IC203
NO
CHECK IC203(46,47) CDS OUT
YES
CHECK C231
NO
CHECK IC203 (4,5,7,41,42)


D
CHECK
IC201(4)
15V
NO
CHECK
15V LINE
YES
CHECK
IC201(10, 11)
-7V
NO
CHECK
-7V LINE
YES
CHECK
IC201(9)
Vsub
YES
CHECK
IC201
NO
F


F
CHECK
IC204(21, 22)
CLK
NO
CHECK
X201, C282, C283
R214, R215
YES
CHECK
IC204
VCC, GND
YES
CHECK
IC204
NO
CHECK
DC/DC BLOCK

6-1 Test and repair of digital section

* Perform the operation test and check for fault in digital section during adjustment and diagnostic program. (Refer to Chapter 5 for Environments, function, program installation and initial execution)

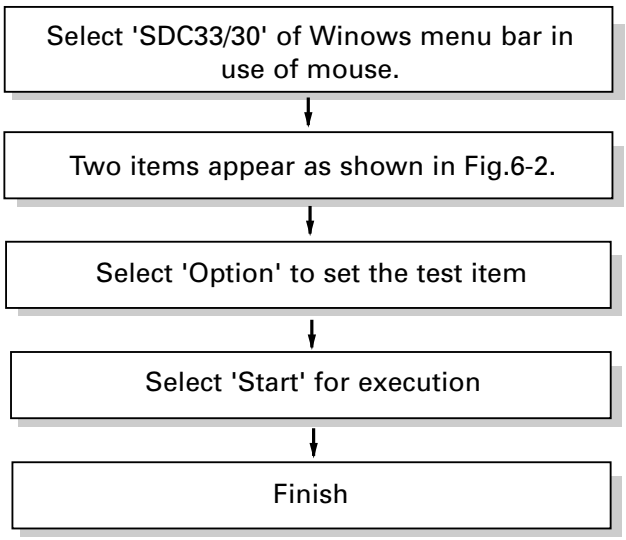

Select 'SDC33/30' of Winows menu bar in use of mouse.
Two items appear as shown in Fig.6-2.
Select 'Option' to set the test item
Select 'Start' for execution
Finish

Fig.6-1

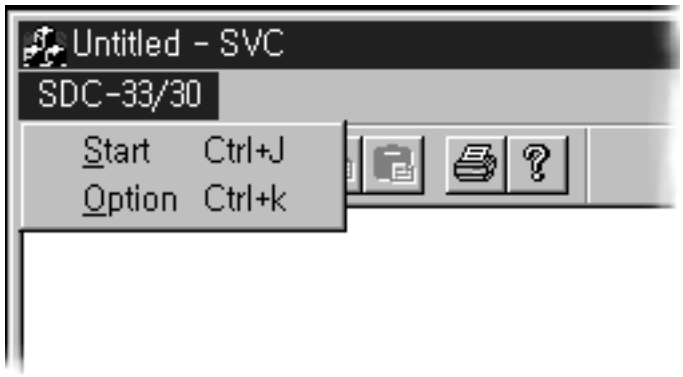


Fig.6-2 Select 'SDC-30/33' of menu bar

6-2 Option window

Option window is set as follows.

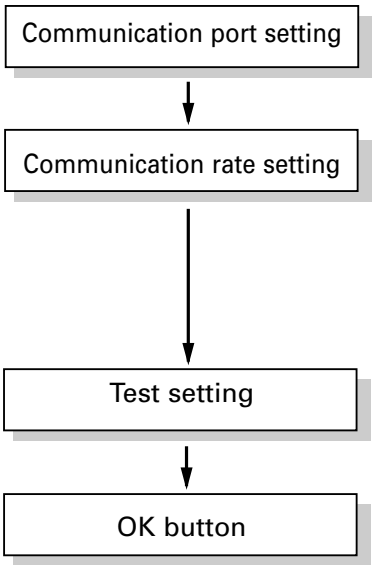


Fig.6-3 Option window setting

: The current DSC sets the communication port connected with PC

: Select the communication rate between DSC and PC (usuallg 56000). If an error occurs, reduce the communication rate (9600 minimum and 115200 maximum).

: TEST DECISION : Disconnection or function (or change the internal adjustment value). Refer to <Fig. 6-3> for details.

: When the above items are set, select 'OK' and complete the test.

Note : select ‘start” of SVC menu to display the window shown in Fig. 5-14.

6-3 Test procedure

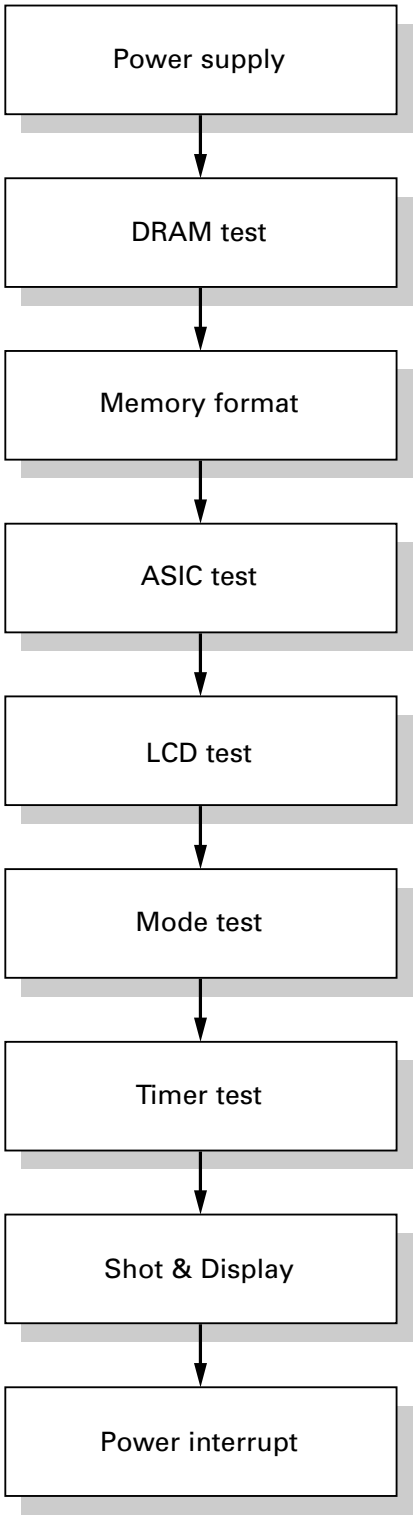


Fig.6-4 Test procedure

6-4. Test items

Power supply

: Supply power to the entire camera

DRAM test

: Check connections between DRAM and RISC

Memory format

: Check the flash memory. The various information and image management data required by the camera are stored in the flash memory.

* Normal memory : Go to the next step with 'Formatted' message.

* Abnormal memory : Display the window to ask for compulsory format with 'Format is broken' message as shown in Fig 6-6. Press 'Enter' (PC keyboard) to retry memory format. Press '+' to enter the next step without formatting. (If formatted, all image data are deleted.)

Fig.6-5

Fig.6-6

*Key : Stop Enter key : Continue

*Replace with new memory : when replacing with new memory (due to memory error), go to the next step after automatic formatting.

ASIC test

: Check for any disconnections between ASIC, RISC and DRAM and ASIC.

LCD test

: Check each segment of camera LCD screen. Press 'Enter' key to stop and enter the next step.

Mode test

: Test by converting the camera into shot mode. The camera has two types of shot functions VGA(640*480) and QVGA(320*240). Test these mode conversions.

Timer test

: Check the delay shot On/Off. Display the result by means of self On/Off without special operation.

Shot & Display

: Display the thumbnail after shot, to confirm normal or abnormal operation.

Power interrupt

: After completion of all tests and adjustments disconnect the power supply.

Fig.6-7

6-5. Follow up Actions After inspection

* Communication port XX can't be used. Select another port.
  -> Cannot use com port XX. Select another com port.

* RISC Processor isn't active.
  -> RISC Processor does not respond.

* Can't receive the specified count of data from camera.
  -> Camera Communication Error.

* There is a Fatal error in <NG> DRAM circuit.
  -> DRAM Test error.

* A fatal error occurs during <NG> ASIC test.
  -> ASIC Test error.

* A fatal error occurs during <NG> Vsub adjustmentt.

  -> V-sub adjust error.

* Memory has been previously formatted.
  -> Memory was already formatted.

* An error occurs in flash memory.
  -> Flash Memory has defective area.
  -> Flash Memory clearing error.
  -> Flash Memory system block error.

* New flash memory.
  -> Flash memory is rare.

* There are Many bad blocks in <NG> flash memory.
  -> Flash Memory system block error.

* XX data bus has a problem.
  -> Data line XX error detected.

* Address bus has a problem.
  -> Address line error detected.

MEMO

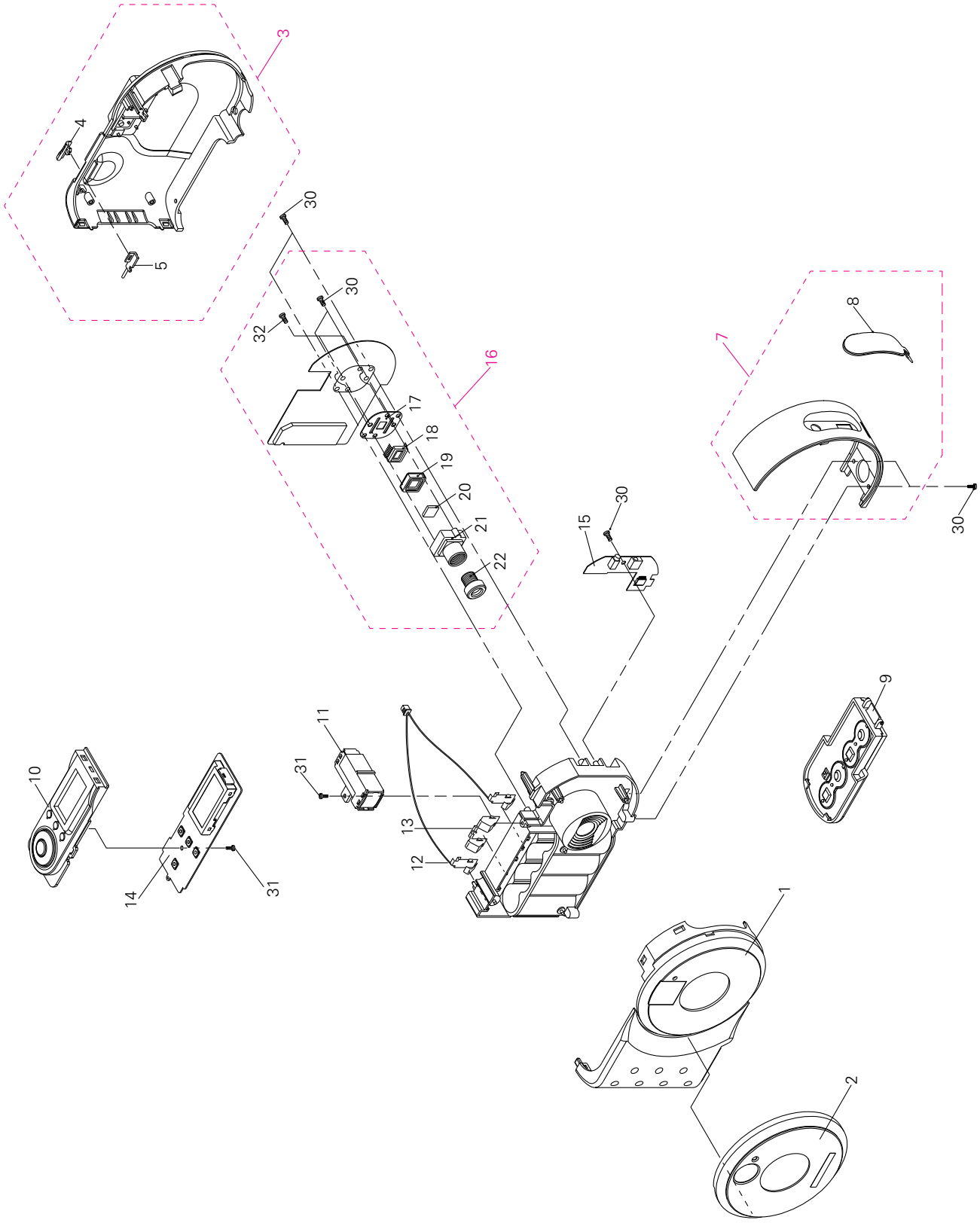
7. Exploded View and Parts List

Page

7-1 Cabinet Assembly - 7-2

7-2 Accessory - 7-4

7-1 Cabinet Assembly

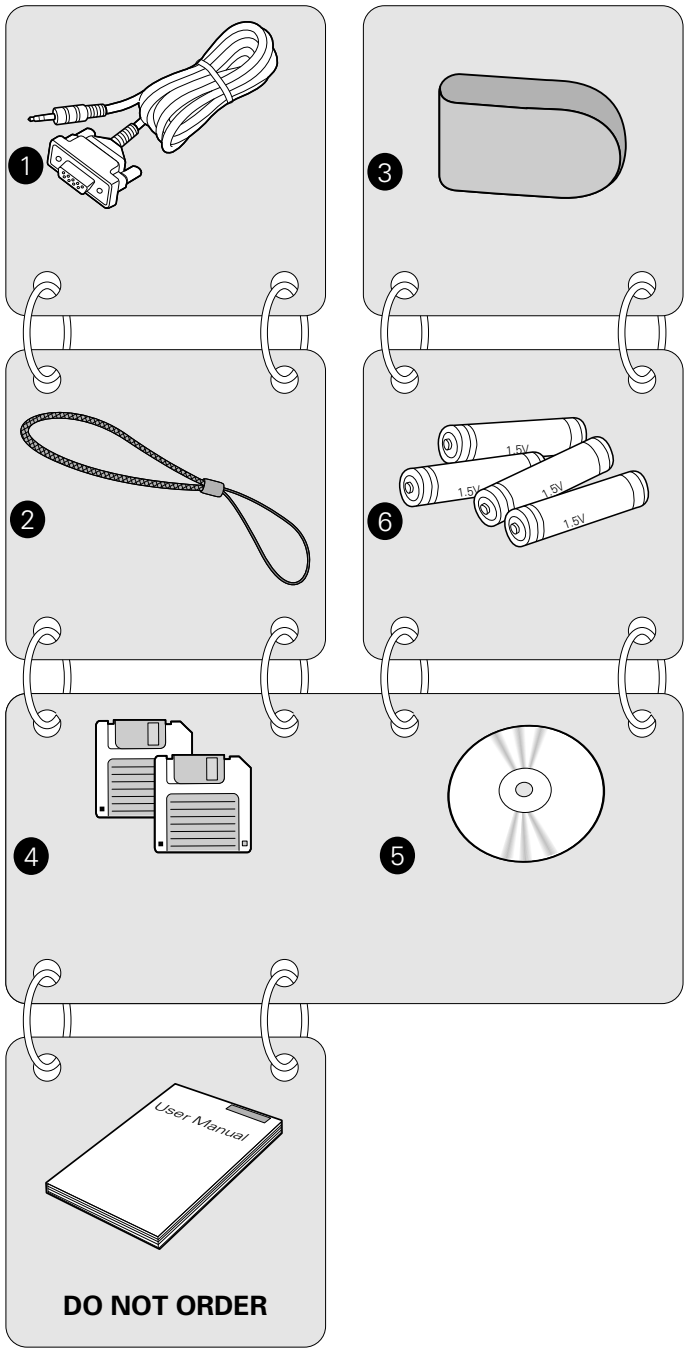


Loc. No	New Part No	Description and Specification	Remark
1	AD59-10417A	UNIT-CASE FRONT	
2	AD64-20621A	PANEL-FRONT;-,A5056P,T0.8,-,-,DSC33	OPTION
	AD64-20621B	PANEL-FRONT;-,A5056P,T0.8,-,-,DSC30	OPTION
3	AD59-10418A	UNIT-CASE REAR;SDC33	OPTION
	AD59-10418B	UNIT-CASE REAR;SDC30	OPTION
4	AD64-10825A	KNOB-POWER;-,PC+ABS,-,BLK,-,	
5	AD61-21053A	HOLDER-POWER;-,PC+ABS,-,BLK,	
7	AD59-10422A	UNIT-CASE SIDE;	
8	AD63-30548A	COVER-JACK;-,PE,HB,-,-,D-GRAY,-,-	
9	AD59-10420A	UNIT-DOOR BATTERY	
10	AD59-10419A	UNIT-CASE TOP	
11	AD59-10445A	UNIT-OVF LENS	
12	AD61-62003A	SPRING-BATTERY A	
13	AD61-62004A	SPRING-BATTERY B	
14	AD90-10813H	ASSY-FUNC BOARD;	
15	AD90-10813Q	ASSY-JACK BOARD;	
16	AD90-10812V	ASSY-MAIN BOARD;SDC30	OPTION
	AD90-10819W	ASSY-MAIN BOARD;SDC33	OPTION
17	AD61-11017A	BRACKET-CCD;-,AL,-,T1.2,-,-,DSC	
18	0605-001010	CCD;COLOR,DIP,16,400MIL,325K,7.4X7	
19	AD63-60088A	SPACER-CCD;-,SILICON,BLK,-,-,DSC	
20	AD29-90200J	FILTER-OPTICALL;DP,SV-4C10MM,LP,-,T	
21	AD61-21047A	HOLDER-LENS;-,PBT94,HB,-,-,BLK	
22	AD67-10169A	LENS-FIXED FOCAL;-,0.16,GLASS,T5.18,15X15.6,6.0	
30	AC60-10054A	SCREW-TAPPING;BH,+,-,M2,X6,FZB	
31	AC60-10055A	SCREW-TAPPING;BH,+,-,M2,X4,FZB	
32	AC60-10024A	SCREW-MACHINE;BH,+,M2,X3,FZW,FE,-,-,-	

7-2 Accessory

AD91-10001A ASSY-ACCESSORY; SDC-30,NTSC

❶	AD39-42001C	CABLE-RS232C; 9P, 1000MM, PLUG 3.5. 20M
❷	AD63-10212A	STRAP-SHOULDER;-,-,-,-,BLK,-,
❸	AD69-32001A	BAG-SOFT CASE; SDC50, LEATHER,-,-,-,BLK,-,-
❹	AD46-30001C	DISC-FLOPPY; 3.5 INCH, 1.44MB
❹	AD46-30001E	DISC-FLOPPY WIN3.1;3.5INCH,1.44MB,SDC-33
❺	AD46-20007A	DISC-IPHOTO EXPRESS ; 120MM
❻	4301-001017	BATTREY-ALKALINE ; 1.5V, -, AA,14 X 49.5MM,PLATE



8. Electrical Parts List

Loc. No	New Part No	Description and Specification	Remark
16	**AD90-10819W**	**ASSY-MAIN BOARD;SDC-33**	
	AD90-10812V	**ASSY-MAIN BOARD;SDC-30**	
C201	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C202	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C203	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C204	2203-000491	C-CERAMIC,CHIP;2.2NF,10%,50V,X7R,TP,1608,-	
C205	2404-000159	C-TA,CHIP;1UF,20%,35V,-,TP,3528,-	
C208	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C209	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C210	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C211	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C212	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C213	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C214	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C215	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C216	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C217	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C218	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C219	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C220	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C221	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C222	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C223	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C224	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C225	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C226	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C227	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C228	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C229	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C230	2203-002220	C-CERAMIC,CHIP;56PF,5%,50V,CH,TP,1608,-	
C231	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C232	2203-001567	C-CERAMIC,CHIP;10PF,0.5PF,50V,CH,TP,1608,1.6M	
C233	2203-001636	C-CERAMIC,CHIP;33PF,5%,50V,NPO,TP,1608,1.6MM	
C234	2203-001567	C-CERAMIC,CHIP;10PF,0.5PF,50V,CH,TP,1608,1.6M	
C238	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C239	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C240	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C241	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C242	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C243	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C244	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C245	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C246	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C247	2404-000238	C-TA,CHIP;4.7UF,20%,20V,-,TP,3528,-	
C248	2404-000120	C-TA,CHIP;10UF,20%,10V,-,TP,3528,-	
C249	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C250	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C251	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C277	2404-000120	C-TA,CHIP;10UF,20%,10V,-,TP,3528,-	
C280	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	

Loc. No	New Part No	Description and Specification	Remark
C281	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C282	2203-000626	C-CERAMIC,CHIP;22PF,5%,50V,NPO,TP,1608,-	
C283	2203-000626	C-CERAMIC,CHIP;22PF,5%,50V,NPO,TP,1608,-	
C285	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C286	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C287	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C301	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C302	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C303	2203-001598	C-CERAMIC,CHIP;2.2UF,+80-20%,16V,Y5V,TP,2012,	
C304	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C305	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C306	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C307	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C308	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C309	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C310	2203-001600	C-CERAMIC,CHIP;20PF,5%,50V,CH,TP,1608,1.6MM	
C311	2203-001600	C-CERAMIC,CHIP;20PF,5%,50V,CH,TP,1608,1.6MM	
C312	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C313	2203-001656	C-CERAMIC,CHIP;470PF,5%,50V,CH,TP,1608,1.6MM	
C314	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C315	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C316	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C317	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C318	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C319	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C320	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C321	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C330	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C331	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C332	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C333	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C391	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C398	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C399	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
CN206	3710-001110	CONNECTOR-SOCKET;18P,2R,0.8MM,SMD-S,AU	
CN301	3710-001172	CONNECTOR-SOCKET;20P,2R,1MM,SMD-S,SN	
D201	0407-000149	DIODE-ARRAY;MA151WA,40V,100MA,CK2-3,SOT-23	
D202	0401-000170	DIODE-SWITCHING;MA110,40V,100MA,-,3NS,SM2	
D203	0401-000170	DIODE-SWITCHING;MA110,40V,100MA,-,3NS,SM2	
D204	0401-000170	DIODE-SWITCHING;MA110,40V,100MA,-,3NS,SM2	
D205	0401-000170	DIODE-SWITCHING;MA110,40V,100MA,-,3NS,SM2	
D207	0401-000170	DIODE-SWITCHING;MA110,40V,100MA,-,3NS,SM2	
D301	0401-000170	DIODE-SWITCHING;MA110,40V,100MA,-,3NS,SM2	
IC201	0605-001010	CCD;COLOR,DIP,16,400MIL,325K,7.4X7	
IC202	1003-001099	IC-CLOCK DRIVER;MN3112SA,SOP,20P,255MIL,SINGLE	
IC203	1204-001257	IC-VIDEO PROCESS;NN2038FAQ,QFP,48P,472MIL,PLAST	
IC204	1205-001165	IC-GENERATOR;MN5246,QFP,64P,-,PLASTIC,7.0V,	
IC205	AC14-12006V	IC-LINEAR;KAD0228,SOP,-	
IC206	AC14-12009X	IC;MB88346B,VSOP,-	
IC207	0801-000301	IC-CMOS LOGIC;7W04,INVERTER,SOP,8P,150MIL,TR	
IC301	AD13-10030C	IC-ASIC;-,SMA9606,QFP,80P,CNTR&INTERFA	
IC302	1105-001083	IC-DRAM;416C256,256KX16BIT,SOP,40P,400	
IC304	AD09-10450N	IC-MCU(OTP);HD6477043F28,144P,DIP,RISC MC,	
IC305	0801-000301	IC-CMOS LOGIC;7W04,INVERTER,SOP,8P,150MIL,TR	
IC307	1107-001054	IC-FLASH MEMORY;5832,4MX8BIT,SOP,44P,400MIL,10	

Loc. No	New Part No	Description and Specification	Remark
L201	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L202	2703-000363	INDUCTOR-SMD;10UH,5%,2.5X2X1.8MM	
L203	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L204	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L205	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L206	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L207	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L208	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L209	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L301	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L302	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L303	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L311	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L321	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
LED01	0601-000208	LED;CHIP,RED,1.5X2MM,660NM	
Q201	0505-000180	FET-SILICON;2SK1070,N,-,50MA,-,150MW,SOT-2	
Q202	0501-000218	TR-SMALL SIGNAL;2SC4081,NPN,200MW,SC-70,TP,180	
Q203	0506-000149	TR-ARRAY;UMX1N,NPN/PNP,1,50V,40V,100MA,	
Q204	0501-000218	TR-SMALL SIGNAL;2SC4081,NPN,200MW,SC-70,TP,180	
Q208	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
Q289	0501-000172	TR-SMALL SIGNAL;2SB1121,PNP,500MW,PCP,TP,100-5	
Q298	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
Q301	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
Q303	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
R201	2007-001442	R-CHIP;10OHM,5%,1/16W,DA,TP,1608	
R202	2007-000109	R-CHIP;1MOHM,5%,1/16W,DA,TP,1608	
R203	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R204	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R205	2007-000125	R-CHIP;3.9KOHM,5%,1/16W,DA,TP,1608	
R206	2007-000651	R-CHIP;27KOHM,1%,1/16W,DA,TP,1608	
R207	A1020-0598	R-CHIP;RH 1/16 CS 123-F C1608	
R208	2007-000092	R-CHIP;15KOHM,5%,1/16W,DA,TP,1608	
R209	2007-000637	R-CHIP;270KOHM,5%,1/16W,DA,TP,1608	
R210	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R211	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R212	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R213	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R214	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R215	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R215	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R216	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R217	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R218	2007-001442	R-CHIP;10OHM,5%,1/16W,DA,TP,1608	
R219	2007-001442	R-CHIP;10OHM,5%,1/16W,DA,TP,1608	
R220	2007-000077	R-CHIP;470OHM,5%,1/16W,DA,TP,1608	
R221	2007-001442	R-CHIP;10OHM,5%,1/16W,DA,TP,1608	
R222	2007-000119	R-CHIP;560OHM,5%,1/16W,DA,TP,1608	
R224	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R232	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R233	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R234	2007-000078	R-CHIP;1KOHM,5%,1/16W,DA,TP,1608	
R235	2007-000125	R-CHIP;3.9KOHM,5%,1/16W,DA,TP,1608	
R236	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R237	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R239	2007-000092	R-CHIP;15KOHM,5%,1/16W,DA,TP,1608	

Loc. No	New Part No	Description and Specification	Remark
R240	2007-000078	R-CHIP;1KOHM,5%,1/16W,DA,TP,1608	
R242	2007-000093	R-CHIP;20KOHM,5%,1/16W,DA,TP,1608	
R244	2007-000124	R-CHIP;2.2KOHM,5%,1/16W,DA,TP,1608	
R246	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R257	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R258	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R259	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R266	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R287	2007-000090	R-CHIP;10KOHM,5%,1/16W,DA,TP,1608	
R288	2007-000572	R-CHIP;220OHM,5%,1/10W,DA,TP,2012	
R289	2007-000572	R-CHIP;220OHM,5%,1/10W,DA,TP,2012	
R301	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R302	2007-000090	R-CHIP;10KOHM,5%,1/16W,DA,TP,1608	
R303	2007-000076	R-CHIP;330OHM,5%,1/16W,DA,TP,1608	
R304	2007-000539	R-CHIP;200OHM,5%,1/16W,DA,TP,1608	
R305	2007-000083	R-CHIP;3KOHM,5%,1/16W,DA,TP,1608	
R306	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R308	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R309	2007-000077	R-CHIP;470OHM,5%,1/16W,DA,TP,1608	
R310	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R333	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R349	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R350	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R351	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R352	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R353	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R354	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R355	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R356	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R357	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R358	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R359	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R360	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R362	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R363	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R364	2007-000084	R-CHIP;4.7KOHM,5%,1/16W,DA,TP,1608	
R370	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R371	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R372	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R373	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R374	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R380	B1018-0099	R-NETWORK;RN 1/16 FV 8P 101-J T MNR14-J-101 CS96	
R383	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R392	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
S301	3408-000300	SWITCH-SLIDE;5V,200MA,-,-	
X201	2801-003378	CRYSTAL-SMD;24.54545MHZ,30PPM,28-ABL,11.1P	
X301	2801-003392	CRYSTAL-SMD;7.15909MHZ,30PPM,28-ABN,16.5PF	
	DC/DC PARTS		
C101	2404-000139	C-TA,CHIP;10UF,20%,6.3V,-,TP,3216,-	
C102	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C103	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C104	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C105	2404-000120	C-TA,CHIP;10UF,20%,10V,-,TP,3528,-	
C121	2404-000120	C-TA,CHIP;10UF,20%,10V,-,TP,3528,-	

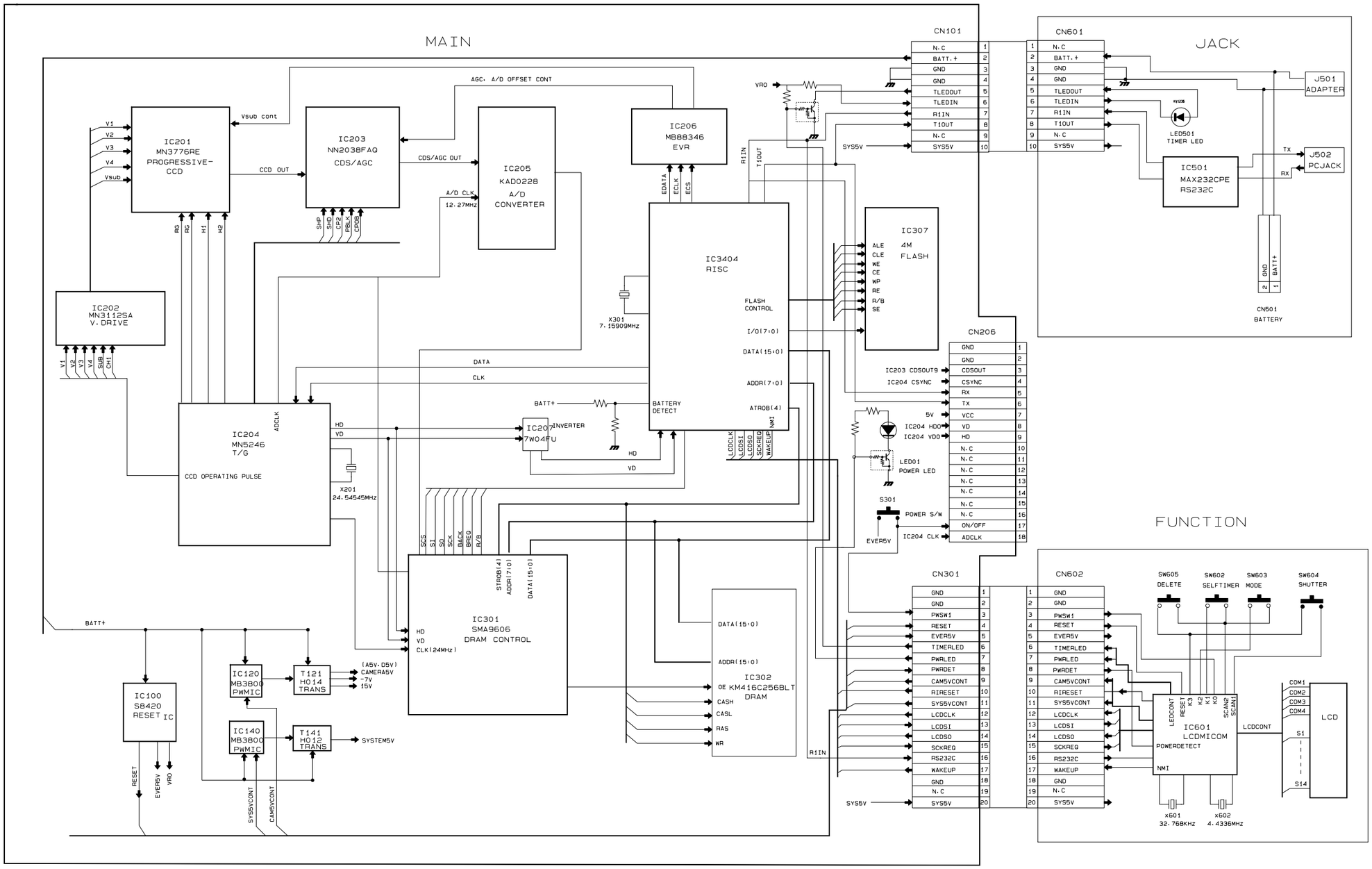
Loc. No	New Part No	Description and Specification	Remark
C122	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C123	B1100-0674	C-CERAMIC,CHIP;CK 73 Y5V 16V T 685-Z C3225	
C124	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C125	2203-001632	C-CERAMIC,CHIP;330PF,5%,50V,CH,TP,1608,1.6MM	
C127	2404-000130	C-TA,CHIP;10UF,20%,20V,-,TP,6032,-	
C128	2404-000130	C-TA,CHIP;10UF,20%,20V,-,TP,6032,-	
C129	2404-000120	C-TA,CHIP;10UF,20%,10V,-,TP,3528,-	
C130	2404-000120	C-TA,CHIP;10UF,20%,10V,-,TP,3528,-	
C131	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C132	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C133	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C134	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C135	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C136	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C141	2404-000120	C-TA,CHIP;10UF,20%,10V,-,TP,3528,-	
C142	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C143	B1100-0674	C-CERAMIC,CHIP;CK 73 Y5V 16V T 685-Z C3225	
C144	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C145	2203-001632	C-CERAMIC,CHIP;330PF,5%,50V,CH,TP,1608,1.6MM	
C146	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C147	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C197	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
CN101	3711-002050	CONNECTOR-HEADER;BOX,10P,1R,1.25MM,SMD-A,SN	
D101	0401-000170	DIODE-SWITCHING;MA110,40V,100MA,-,3NS,SM2	
D121	0407-001013	DIODE-ARRAY;MA160A,80V,100MA,CX2,SOT-143,T	
D122	0404-000150	DIODE-SCH0TTKY;EC10QS04,40V,1A,SMD,TP	
D141	0404-000150	DIODE-SCH0TTKY;EC10QS04,40V,1A,SMD,TP	
IC100	AC14-12012F	IC;S-8420BF-T1,SOP,-	
IC120	1203-001199	IC-PWM CONTROLLER;3800,SOP,8P,250MIL,PLASTIC,1.0	
IC140	1203-001199	IC-PWM CONTROLLER;3800,SOP,8P,250MIL,PLASTIC,1.0	
L101	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L102	2703-000398	INDUCTOR-SMD;10UH,10%,3.2X2.5X2.2MM	
L121	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L122	2703-000350	INDUCTOR-SMD;10UH,20%,7.3X7.3X4.75MM	
L123	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L124	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L125	2703-000398	INDUCTOR-SMD;10UH,10%,3.2X2.5X2.2MM	
L126	2703-000398	INDUCTOR-SMD;10UH,10%,3.2X2.5X2.2MM	
L127	2703-000350	INDUCTOR-SMD;10UH,20%,7.3X7.3X4.75MM	
L141	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
L142	2703-000350	INDUCTOR-SMD;10UH,20%,7.3X7.3X4.75MM	
L143	2703-000408	INDUCTOR-SMD;3.3UH,20%,3.2X2.5X2.2MM	
L144	2703-000408	INDUCTOR-SMD;3.3UH,20%,3.2X2.5X2.2MM	
P101 ⚠	3601-000365	FUSE-SMD;125V,1.5A,VERY FAST ACT,CERAMI	
Q101	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
Q121	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
Q122	0502-001054	TR-POWER;KSD1621,NPN,500MW,SOT-89,TP,14	
Q141	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
Q142	0502-001054	TR-POWER;KSD1621,NPN,500MW,SOT-89,TP,14	
Q198	0504-000113	TR-DIGITAL;DTC144EUA,NPN,200MW,47K-47K,SC	
Q199	0501-000172	TR-SMALL SIGNAL;2SB1121,PNP,500MW,PCP,TP,100-5	
R101	2007-000070	R-CHIP;0OHM,5%,1/16W,DA,TP,1608	
R102	2007-000539	R-CHIP;200OHM,5%,1/16W,DA,TP,1608	
R103	2007-000107	R-CHIP;470KOHM,5%,1/16W,DA,TP,1608	
R104	2007-000119	R-CHIP;560OHM,5%,1/16W,DA,TP,1608	

Loc. No	New Part No	Description and Specification	Remark
R105	2007-000060	R-CHIP;100KOHM,1%,1/16W,DA,TP,1608	
R106	2007-000060	R-CHIP;100KOHM,1%,1/16W,DA,TP,1608	
R107	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R109	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R121	2007-000118	R-CHIP;390OHM,5%,1/16W,DA,TP,1608	
R122	2007-000516	R-CHIP;2.7KOHM,1%,1/16W,DA,TP,1608	
R123	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R124	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R125	2007-000067	R-CHIP;15KOHM,1%,1/16W,DA,TP,1608	
R126	2007-001199	R-CHIP;820OHM,1%,1/16W,DA,TP,1608	
R127	2007-000043	R-CHIP;1KOHM,1%,1/16W,DA,TP,1608	
R128	2007-000869	R-CHIP;4.7KOHM,1%,1/16W,DA,TP,1608	
R140	2007-000118	R-CHIP;390OHM,5%,1/16W,DA,TP,1608	
R141	2007-000516	R-CHIP;2.7KOHM,1%,1/16W,DA,TP,1608	
R142	2007-000077	R-CHIP;470OHM,5%,1/16W,DA,TP,1608	
R143	2007-000067	R-CHIP;15KOHM,1%,1/16W,DA,TP,1608	
R144	2007-001199	R-CHIP;820OHM,1%,1/16W,DA,TP,1608	
R145	2007-000869	R-CHIP;4.7KOHM,1%,1/16W,DA,TP,1608	
R146	2007-000043	R-CHIP;1KOHM,1%,1/16W,DA,TP,1608	
R189	2007-000033	R-CHIP;0OHM,5%,1/8W,DA,TP,3216	
R198	2007-000572	R-CHIP;220OHM,5%,1/10W,DA,TP,2012	
R199	2007-000572	R-CHIP;220OHM,5%,1/10W,DA,TP,2012	
T121	AD26-20120G	TRANS-CONVERTOR;DP,395UH,CLS-10(395UH)	
T141	AD26-20120H	TRANS-CONVERTOR;DP,12.5UH,CLS-10(12.5UH)	
15	**AD90-10813Q**	**ASSY-JACK BOARD**	
B501	AC29-32001B	FILTER-EMI BEAD;CB321611-TA SB 0.2OH,-,-,-	
B502	AC29-32001B	FILTER-EMI BEAD;CB321611-TA SB 0.2OH,-,-,-	
C501	2409-001013	C-EDL;0.1F,5.0V,-,100UA,TP,10.5X5.5,	
C502	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C503	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C504	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C505	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C506	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
C507	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
CN501	3711-000541	CONNECTOR-HEADDER;4WALL,2P,1R,1.25MM,SMD,SN	
CN502	3711-002050	CONNECTOR-HEADER;BOX,10P,1R,1.25MM,SMD-A,SN	
CNE01	AD39-20825M	LEAD CONNECTOR-ASSY;-,51021-0210,51021-0210,2P,1	
CNE02	AD39-20816A	LEAD CONNECTOR-ASSY;-,51021-51021-10P,-,10P,70MM	
D501	0403-001126	DIODE-ZENER;UDZ18D,10%,200MW,UMD2,TP	
D502	0403-001126	DIODE-ZENER;UDZ18D,10%,200MW,UMD2,TP	
D503	0403-001126	DIODE-ZENER;UDZ18D,10%,200MW,UMD2,TP	
D504	0403-001126	DIODE-ZENER;UDZ18D,10%,200MW,UMD2,TP	
D507	0403-001126	DIODE-ZENER;UDZ18D,10%,200MW,UMD2,TP	
D508	0403-001126	DIODE-ZENER;UDZ18D,10%,200MW,UMD2,TP	
D509	0404-000150	DIODE-SCH0TTKY;EC10QS04,40V,1A,SMD,TP	
IC501	AC14-12013Y	IC-LINEAR;MAX232CWE,SOP BULK,RS232-DRIVE	
J501	3722-000465	JACK-DC POWER;1P/1C,PI4.4,AG,BLK,-	
J502	AD37-20001A	JACK-PHONE;HSJ1456-012220,AU	
L501	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
LED501	0601-000208	LED;CHIP,RED,1.5X2MM,660NM	
SW510	3408-000141	SWITCH-SLIDE;15V,100MA,-,-	

Loc. No	New Part No	Description and Specification	Remark
14	**AD90-10813H**	**ASSY-FUNC BOARD**	
C601	2404-000198	C-TA,CHIP;22UF,20%,6.3V,-,TP,3528,-	
C602	2203-001556	C-CERAMIC,CHIP;100NF,+80-20%,25V,Y5V,TP,1608,	
C603	2203-001600	C-CERAMIC,CHIP;20PF,5%,50V,CH,TP,1608,1.6MM	
C604	2203-001600	C-CERAMIC,CHIP;20PF,5%,50V,CH,TP,1608,1.6MM	
C605	2203-000426	C-CERAMIC,CHIP;18PF,5%,50V,NPO,TP,1608,-	
C606	2203-000426	C-CERAMIC,CHIP;18PF,5%,50V,NPO,TP,1608,-	
C607	2203-000477	C-CERAMIC,CHIP;1UF,+80-20%,16V,Y5V,TP,2012,-	
CN601	3711-003540	CONNECTOR-HEADER;BOX,20P,2R,1MM,SMD-A,SN	
IC601	AD11-10020B	MASK-ROM;UPD75P3116,64P,QFP,SV-D100,8BI	
L601	2703-000403	INDUCTOR-SMD;22UH,10%,3.2X2.5X2.2MM	
LCD01	AD07-10032L	LCD-PANNEL;DP,LS-0690A,SDC-30,-	
R601	2007-000090	R-CHIP;10KOHM,5%,1/16W,DA,TP,1608	
R602	2007-000090	R-CHIP;10KOHM,5%,1/16W,DA,TP,1608	
R603	2007-000090	R-CHIP;10KOHM,5%,1/16W,DA,TP,1608	
R604	2007-000124	R-CHIP;2.2KOHM,5%,1/16W,DA,TP,1608	
R605	2007-000076	R-CHIP;330OHM,5%,1/16W,DA,TP,1608	
R606	2007-000130	R-CHIP;39KOHM,5%,1/16W,DA,TP,1608	
R607	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R608	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R609	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R610	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
R612	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R613	2007-000074	R-CHIP;100OHM,5%,1/16W,DA,TP,1608	
R615	2007-000084	R-CHIP;4.7KOHM,5%,1/16W,DA,TP,1608	
R616	2007-000084	R-CHIP;4.7KOHM,5%,1/16W,DA,TP,1608	
R617	2007-000102	R-CHIP;100KOHM,5%,1/16W,DA,TP,1608	
R619	2007-000097	R-CHIP;47KOHM,5%,1/16W,DA,TP,1608	
SW602	3404-000276	SWITCH-TACT;15VDC,20MA,100GF,4.9X4.9X1.5MM	
SW603	3404-000276	SWITCH-TACT;15VDC,20MA,100GF,4.9X4.9X1.5MM	
SW604	3404-000276	SWITCH-TACT;15VDC,20MA,100GF,4.9X4.9X1.5MM	
SW605	3404-000276	SWITCH-TACT;15VDC,20MA,100GF,4.9X4.9X1.5MM	
X601	2801-001449	CRYSTAL-SMD;32.768KHZ,20PPM,28-AAW,12.5PF,	
X602	2801-001437	CRYSTAL-SMD;4.433619MHZ,20PPM,28-AAE,16PF,	
ACCE	**AD91-10001A**	**ASSY-ACCESSORY**	
	4301-001017	BATTERY-ALKALINE;1.5V,-,AA,14X49.5MM,PLATE STEE	
	68114-619-210	I/D STICKER;ART PAPER 120G DOUBLE FACE PAPER	
	68654-604-820	PE-BAG ACCESSORY;PE T0.05X170X190 PAL	
	AD39-42001C	CABLE-RS232C;9P,F,1000MM,PLUG 3.5•',20M•ÿ,2	
	AD46-20007A	DISC-IPHOTO EXPRESS;120MM,IPHOTO EXPRESS,CD,SDC-	
	AD46-30001C	DISC-FLOPPY;3.5INCH,1.44MB,SDC-33	
	AD46-30001E	DISC-FLOPPY WIN3.1;3.5INCH,1.44MB,SDC-33	
	AD63-10212A	STRAP-SHOULDER;-,-,-,-,BLK,-,SDC-50	
	AD69-32001A	BAG-SOFT CASE;SDC-50,LEATHER,-,-,-,BLK,-,-	

MEMO

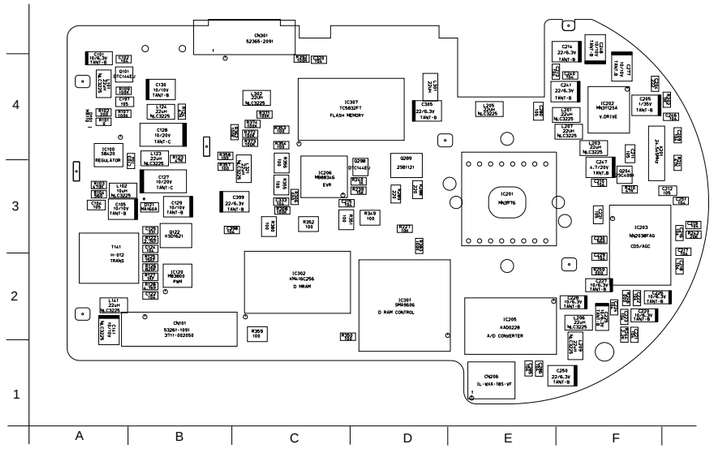
9. Block Diagram



10. PCB Diagrams

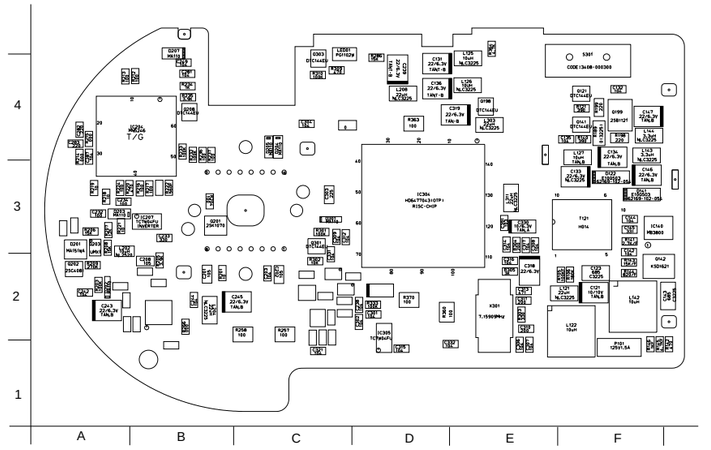
		Page
10-1	Main	10-2
10-2	Jack	10-2
10-3	Function	10-3

10-1 Main



(Component Side)

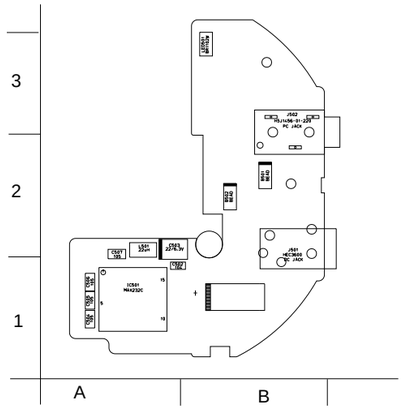
LOCATION	COORDINATES
Q101	4-A
Q122	3-B
Q204	4-F
IC100	4-A
IC120	2-B
IC307	3-C
IC206	3-C
IC302	2-C
IC301	2-D
IC205	2-E
IC202	4-F
IC203	4-F



(Conductor Side)

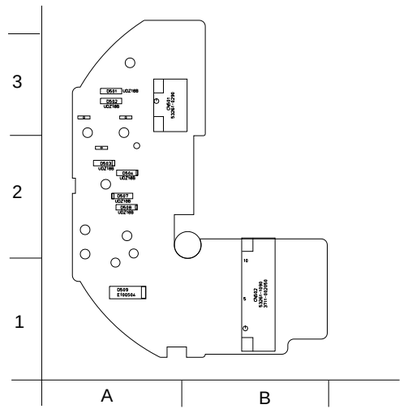
LOCATION	COORDINATES
IC140	2-F
IC204	4-A
IC207	3-B
IC303	3-D
IC305	1-D
Q201	3-B
Q303	4-C
Q198	4-E
Q121	4-F
Q141	4-F
Q199	4-F
Q142	2-F

10-2 Jack



(Component Side)

LOCATION	COORDINATES
J502	3-B
J501	2-B
IC501	1-A

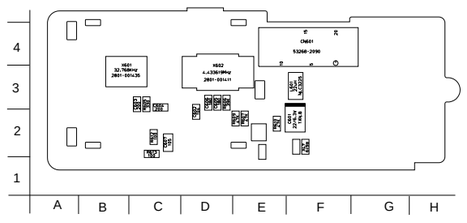


(Conductor Side)

LOCATION	COORDINATES
CN501	3-A
CN502	1-B

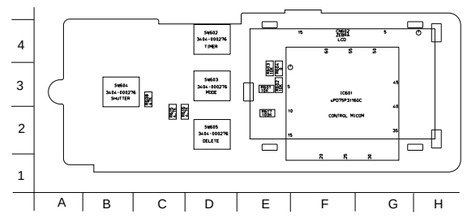
10-3 Function

LOCATION	COORDINATES
CN601	4-F



(Component Side)

LOCATION	COORDINATES
IC601	3-F
CN602	4-F



(Conductor Side)

11. Schematic Diagrams

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Note

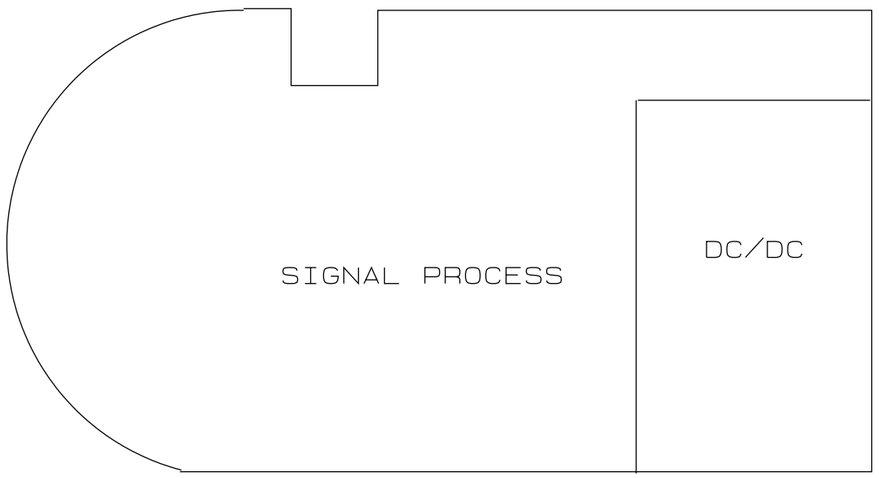
For schematic Diagram
- Resistors are in ohms, 1/8W unless otherwise noted.
- Circled numbers refer to waveforms.

Special note :
Most semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the “electrostatically sensitive (ES) devices” section of this service manual.

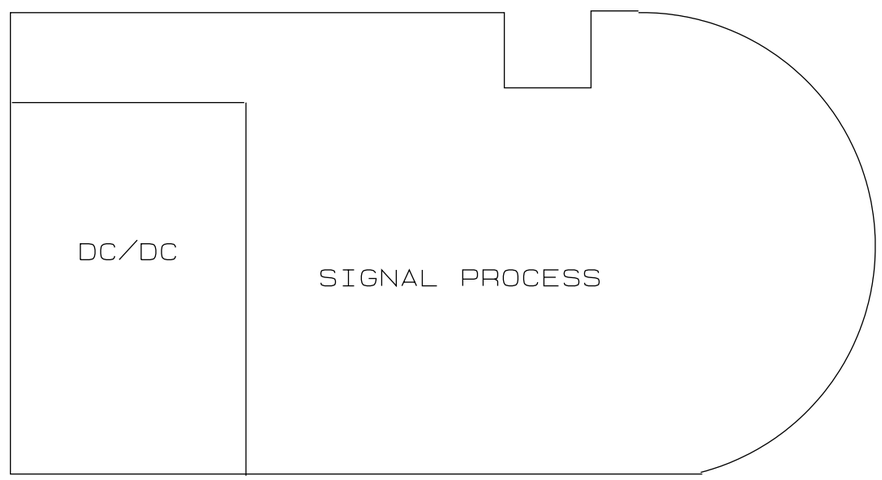
Note :
Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list (may be slightly different or amended since this drawing was prepared).

Important safety notices :
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components. Use only the same type.

◆ Block Identification of Main PCB

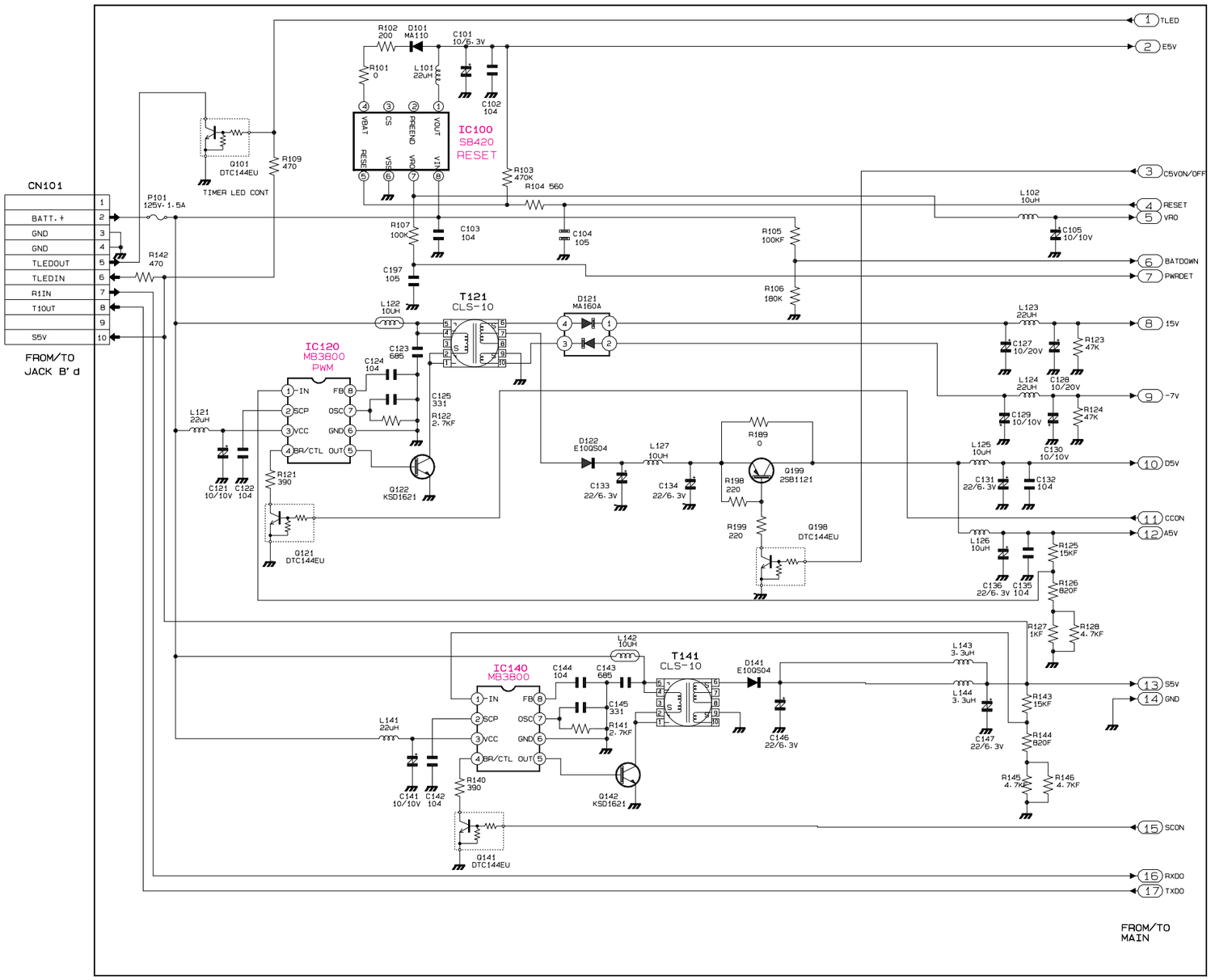


(Component Side)



(Conductor Side)

11-1. DC/DC

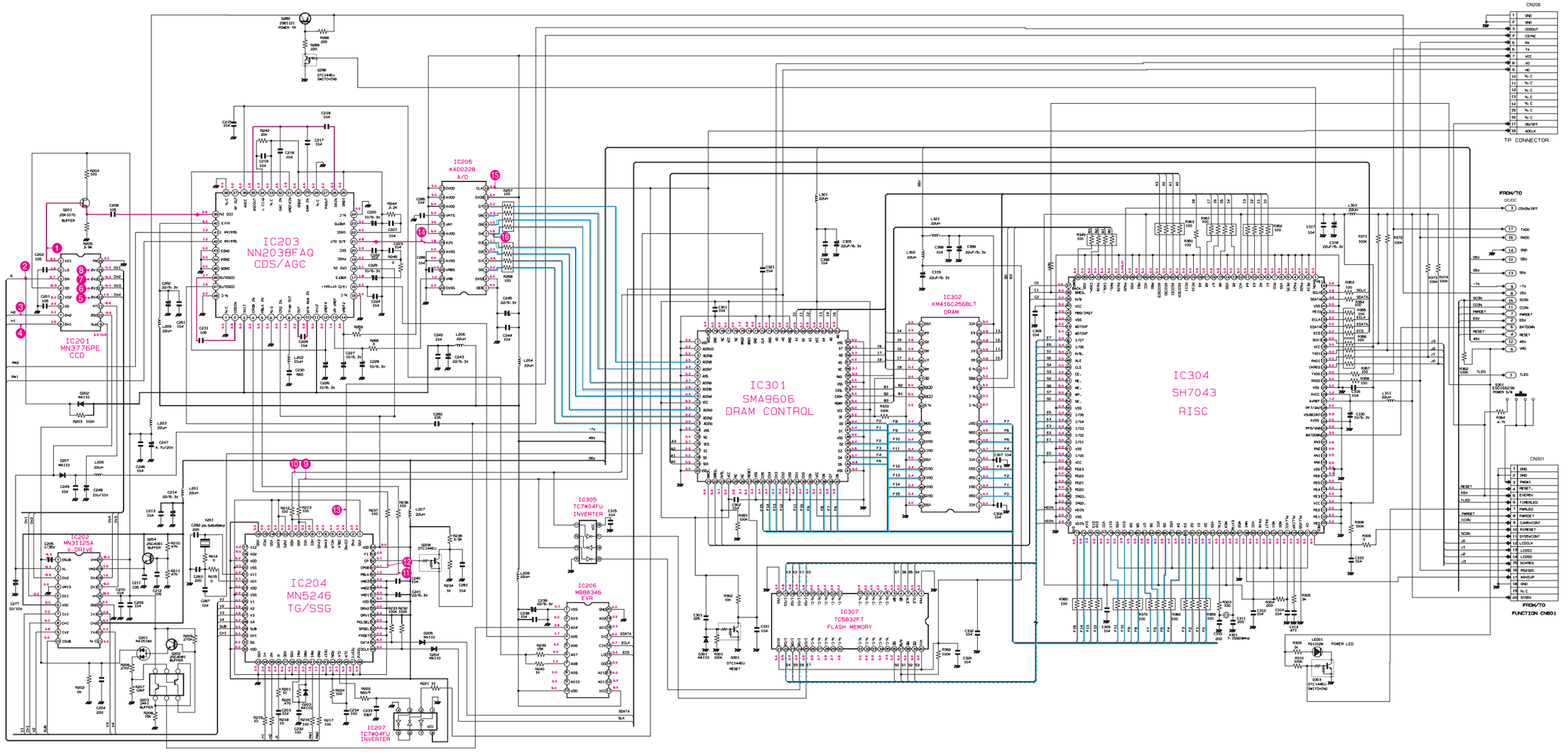

CN101
BATT.+
GND
GND
TLEDOUT
TLEDIN
R1IN
T10UT
S5V
FROM/TO JACK B'd
P101 125V. 1.5A
Q101 DTC144EU
TIMER LED CONT
R109 470
R142 470
R102 200
D101 MA110
C101 10/6.3V
R101 0
L101 22UH
C102 104
IC100 S8420 RESET
VBAT
CS
FREEND
VOUT
RESET
VSS
VRO
VIN
R103 470K
R104 560
R107 100K
C103 104
C104 105
C197 105
R105 100KF
R106 180K
L102 10UH
C105 10/10V
T121 CLS-10
L122 10UH
D121 MA160A
IC120 MB3800 PWM
C123 685
C124 104
C125 331
R122 2.7KF
IN
SCP
VCC
BR/CTL
FB
OSC
GND
OUT
L121 22UH
C121 10/10V
C122 104
R121 390
Q121 DTC144EU
Q122 KSD1621
D122 E100S04
L127 10UH
C133 22/6.3V
C134 22/6.3V
R189 0
Q199 2SB1121
R198 220
R199 220
Q198 DTC144EU
L123 22UH
C127 10/20V
R123 47K
L124 22UH
C128 10/20V
C129 10/10V
R124 47K
L125 10UH
C130 10/10V
C131 22/6.3V
C132 104
L126 10UH
C136 22/6.3V
C135 104
R125 15KF
R126 820F
R127 1KF
R128 4.7KF
L142 10UH
T141 CLS-10
IC140 MB3800
C144 104
C143 685
C145 331
R141 2.7KF
L141 22UH
C141 10/10V
C142 104
R140 390
Q142 KSD1621
Q141 DTC144EU
D141 E100S04
C146 22/6.3V
L143 3.3UH
L144 3.3UH
C147 22/6.3V
R143 15KF
R144 820F
R145 4.7KF
R146 4.7KF
1 TLED
2 E5V
3 C5VON/OFF
4 RESET
5 VRO
6 BATDOWN
7 PWRDET
8 15V
9 -7V
10 D5V
11 CCON
12 A5V
13 S5V
14 GND
15 SCON
16 RXDO
17 TXDO
FROM/TO MAIN

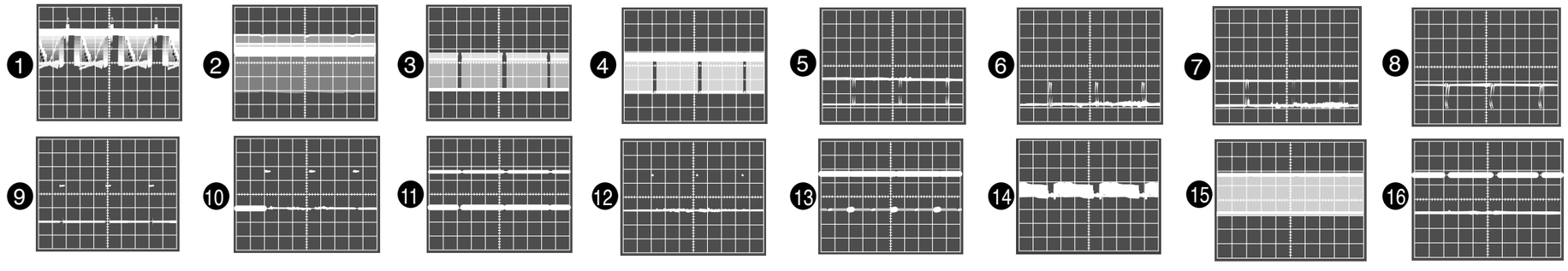
11-2. Main

ANALOG SIGNAL

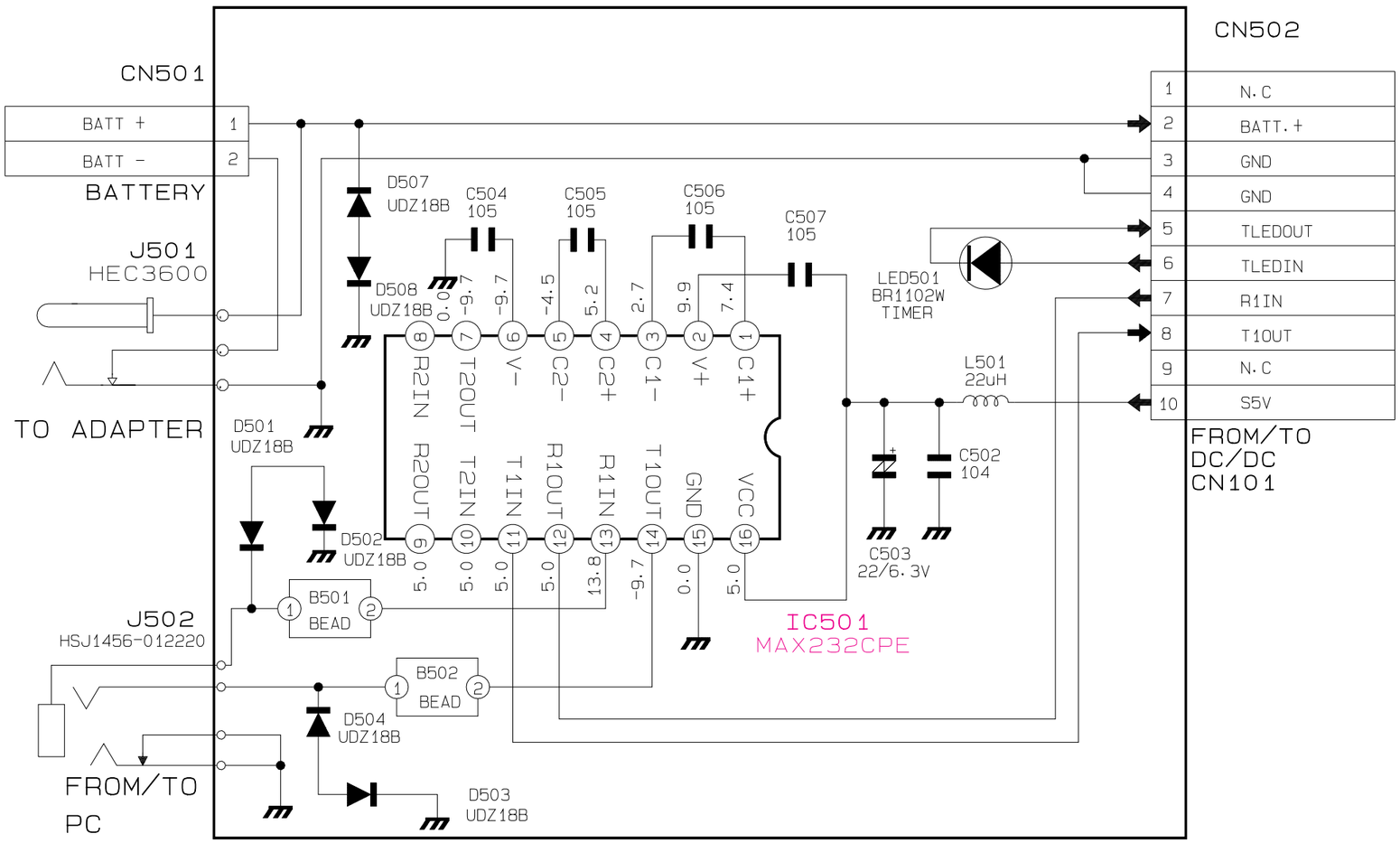
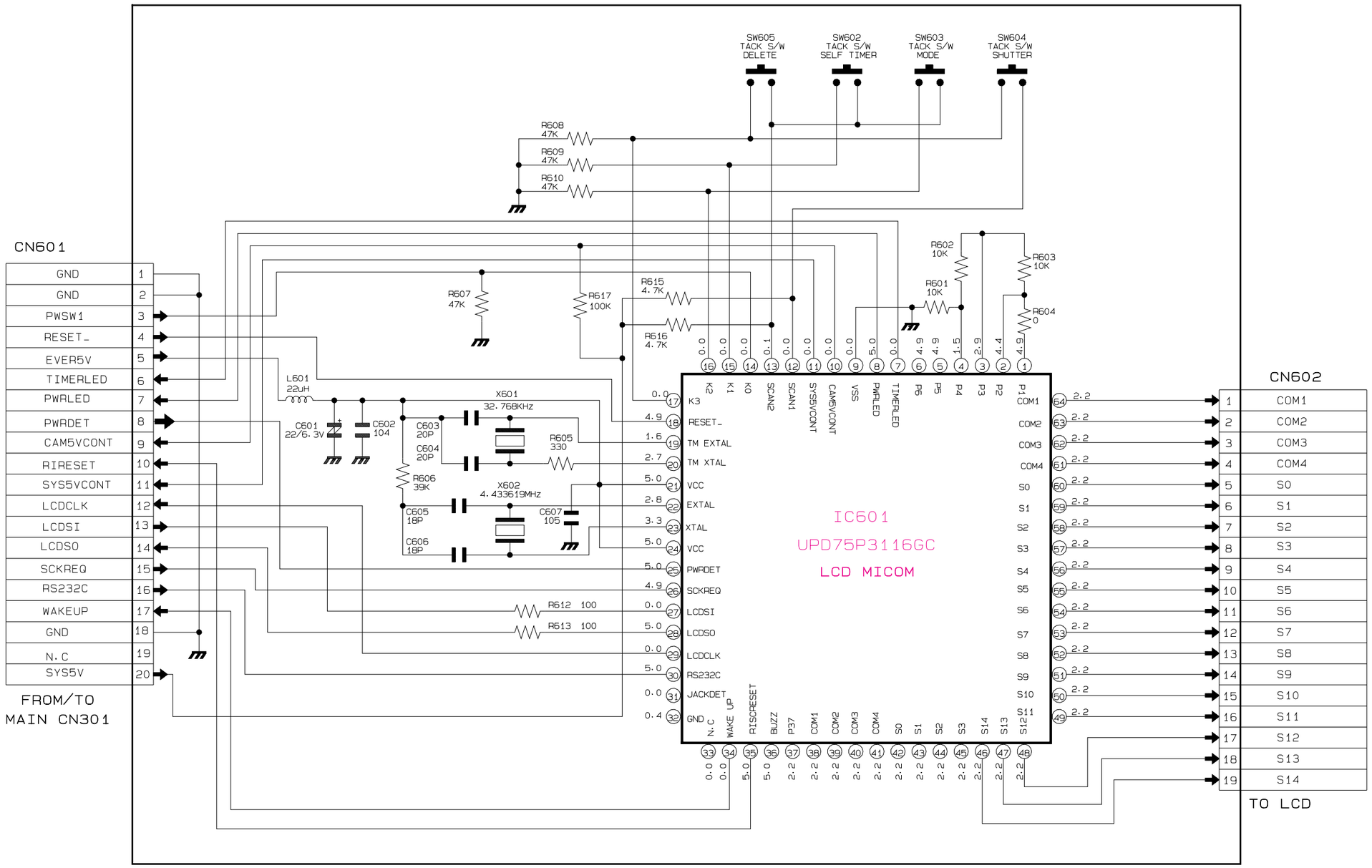
DIGITAL SIGNAL

JPEG SIGNAL





11-3. Jack


CN501
BATT +
BATT -
1
2
BATTERY
J501
HEC3600
TO ADAPTER
D501
UDZ18B
D507
UDZ18B
C504
105
C505
105
C506
105
C507
105
D508
UDZ18B
0.0
-9.7
-9.7
-4.5
5.2
2.7
9.9
7.4
R2IN
T2OUT
T2IN
R1OUT
R1IN
T1OUT
GND
VCC
C1+
C1-
V+
C2+
C2-
V-
T1IN
R2OUT
D502
UDZ18B
5.0
5.0
5.0
5.0
13.8
-9.7
0.0
5.0
B501
BEAD
B502
BEAD
J502
HSJ1456-012220
FROM/TO
PC
D504
UDZ18B
D503
UDZ18B
LED501
BR1102W
TIMER
L501
22uH
C503
22/6.3V
C502
104
IC501
MAX232CPE
CN502
1 N.C
2 BATT.+
3 GND
4 GND
5 TLEDOUT
6 TLEDIN
7 R1IN
8 T1OUT
9 N.C
10 S5V
FROM/TO
DC/DC
CN101

11-4. Function